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A special issue devoted to
Deglobalization:
Challenges for Emerging Countries

Guest Editors
Ratih Dyah Kusumastuti, Tengku Ezni Balqiah
& Dony Abdul Chalid

PERTANIKA
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The *Introduction* explains the scope and objective of the study in the light of current knowledge on the subject; the *Materials and Methods* describes how the study was conducted; the *Results* section reports what was found in the study; and the *Discussion* section explains meaning and significance of the results and provides suggestions for future directions of research. The manuscript must be prepared according to the Journal's **INSTRUCTIONS TO AUTHORS**.

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2. The CEE sends the article-identifying information having been removed, to three reviewers who are specialists in the subject matter represented by the article. The CEE requests them to complete the review in three weeks.

   Comments to authors are about the appropriateness and adequacy of the theoretical or conceptual framework, literature review, method, results and discussion, and conclusions. Reviewers often include suggestions for strengthening of the manuscript. Comments to the editor are in the nature of the significance of the work and its potential contribution to the field.

3. The CEE, in consultation with the Editor-in-Chief (EiC), examines the reviews and decides whether to reject the manuscript, invites the author(s) to revise and resubmit the manuscript. The CEE may seek additional reviews. Final acceptance or rejection rests with the CEE and EiC, who reserve the right to refuse any material for publication. In rare instances, the manuscript is accepted with almost no revision. Almost without exception, reviewers' comments (to the author) are forwarded to the author. If a revision is indicated, the editor provides guidelines for attending to the reviewers' suggestions and perhaps additional advice about revising the manuscript.

4. The authors decide whether and how to address the reviewers' comments and criticisms and the editor's concerns. The authors return a revised version of the paper to the chief executive editor along with specific information describing how they have answered' the concerns of the reviewers and the editor, usually in a tabular form. The author(s) may also submit a rebuttal if there is a need especially when the author disagrees with certain comments provided by reviewer(s).

5. The CEE sends the revised paper out for re-review. Typically, at least one of the original reviewers will be asked to examine the article.

6. When the reviewers have completed their work, the CEE in consultation with the EiC and Editorial Board Members examine their comments and decide whether the paper is ready to be published, needs another round of revisions, or should be rejected.

7. If the decision is to accept, an acceptance letter is sent to all the author(s), the paper is sent to the Press. The article should appear in print in approximately three months.

   The Publisher ensures that the paper adheres to the correct style (in-text citations, the reference list, and tables are typical areas of concern, clarity, and grammar). The authors are asked to respond to any minor queries by the Publisher. Following these corrections, page proofs are mailed to the corresponding authors for their final approval. At this point, **only essential changes are accepted**. Finally, the article appears in the pages of the Journal and is posted on-line.

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Deglobalization: Challenges for Emerging Countries

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JOURNAL DIVISION
Putra Science Park
1st Floor, IDEA Tower II
UPM-MTDC Technology Centre
Universiti Putra Malaysia
43400 Serdang, Selangor Malaysia.
Gen Enq.: +603 9769 1622
E-mail:
executive_editor.pertanika@upm.edu. my
URL: www.journals-jd.upm.edu.my

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Tel: +603 9769 8851
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ABSTRACTING AND INDEXING OF PERTANIKA JOURNALS

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Challenges for Emerging Countries

Preface

It is our great pleasure to present this special issue of Pertanika Journal of Social Science and Humanities. This special issue consists of 17 articles which are selected from 109 articles presented in the 11th International Conference on Business and Management Research (ICBMR) 2017, which was held in Padang, West Sumatra, Indonesia on 1-3 November 2017.

The papers cover various topics ranging from finance, human resources management, marketing, general and strategic management, operations management, Islamic finance, accounting, and economics. All the papers published in this issue underwent Pertanika's stringent peer-review process involving a minimum of two reviewers comprising internal as well as external referees. We hope that the papers published in this special issue would be of interest to academic and industrial communities and encourage further impacted research in the area of business and management.

We would like to thank all the contributors, reviewers and the editorial team at Management Research Center, Department of Management, for their patience, hard work and commitment to make this special issue possible. We would also like to express our gratitude for the support given by the Head of Research and Innovation Products Management Office (KPPRI) and the Dean of Faculty of Economics and Business, Universitas Indonesia.

We are very grateful to Pertanika's Editor-in-chief, the Chief Executive Editor, and their dedicated publication team, for their valuable inputs and advice during the publication process. This has certainly inspired us to do more and better in the future.

Guest Editors :

Ratih Dyah Kusumastuti *(Dr)*
Tengku Ezni Balqiah *(Dr)*
Dony Abdul Chalid *(Dr)*

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Firm Profitability, Ownership Structure and Dividend Policy on the Indonesian Manufacturing Companies

Muhammad Arif Akbar and Yosman Bustaman*

Swiss German University, The Prominence Tower, Jalan Jalur Sutera Barat Kav 15, Alam Sutera Tanggerang, Banten, 15143, Indonesia

ABSTRACT

This paper aims to investigate the relationship between firms' profitability and the level of insiders' ownership, government ownership, and foreign ownership and its effect on the dividend distribution for manufacturing firms in Indonesia over the period of 2009 to 2015. Two main proxies were employed for a firm's profitability: (namely) return on asset (ROA) and net profit margin (NPM). Using panel data regression, the results revealed that profitability had a positive impact on dividend distribution; this finding supports dividend-signaling theory. The association between dividends and insiders' ownership was consistently negative, but not significant. Thus, the cash flow expropriation by insiders at the cost of minority shareholders was not proven in this study. However, this early warning signal must serve as an alarm for the regulators, even though, not all public listed firms were examined in this study. Furthermore, the higher government ownership resulted in an increase in dividend payment, thus political factors and cash needed to fund country budget might influence this decision. This study also found a negative relationship between the level of foreign ownership and dividend payment, so when firms cut dividend payments, it serves as a signal to the market that foreigners are not tunneling cash to its principal abroad. These results are expected to raise concern regarding corporate governance issues, especially regarding minority shareholder protection.

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E-mail addresses:
m_arif_akbar@yahoo.com (Muhammad Arif Akbar)
jbustaman@gmail.com/yosman.bustaman@sgu.ac.id (Yosman Bustaman)
*Corresponding author

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INTRODUCTION

Earlier dividend payout studies viewed dividends as a form of distribution profit used to communicate information to shareholders as well as to meet the demand payment from diverse types of clientele (Allen & Michaely, 2003; Denis et al., 1994). However, De Angelo et al. (2004) found that clientele did not have a major impact on other circumstances in the decade after year 2000. Aggregate dividends supply increases as the aggregate earnings of a small number of companies in the United States (US) increases. De Angelo et al. (2006) confirmed that the firm profits or capital mix became dominant determinant factors in firms' dividend policy, thus providing support for the life-cycle theory of dividends.

De Angelo et al. (2006) combined the life-cycle theory and agency theory with the free cash flows theory from Jensen (1986) as well as firms' investment opportunity (Fama & French, 2001) and predicted that firms would adjust their dividend payment over time in response to the advancement of their opportunity set. The free cash flow theory and its relation to dividend payment, proposed by Jensen and Meckling (1976), was in line with this philosophy. When there are no attractive investment opportunities, in an effort to minimize conflict of interest between managers and shareholders, firms tend to distribute their profit or their excess cash flows to shareholders. Some researchers then tested this theory and confirmed that a company's profitability played a significant role in dividend policy. Among these researchers were Chang et al. (2016); Fama and French (2002) who analyzed US data. Empirical evidence in emerging countries supports these results, with findings from counties such as Ghana (Amidu & Abor, 2006), Korea (Hwang et al., 2013), some African countries (Jabbouri, 2016) and Indonesia (Mulyani et al., 2016).

Dividends are also used to prevent managers from expropriating the firm's cash flow for unprofitable investments or other personal interests (Jensen & Meckling, 1976). Additionally, this dividend payout functions to discipline managers by reducing the amount of available internal cash flows; thus, they are compelled to look for other funding alternatives, such as external financing, which is controlled strictly by creditors (Easterbrook, 1984).

Dividend payments can be viewed as a transfer of wealth from the majority shareholder to another minority shareholder (La Porta et al., 2000). Large controlling shareholders such as institutions, families, or state enterprises may create an agency conflict with minority shareholders that have different magnitudes of interest. Majority shareholders then withhold dividends to expropriate minority shareholders for their private benefit (Gugler & Yurtuglu, 2003). However, Villalonga and Amit (2006) explained that the classic agency problem could be mitigated through concentrated ownership that instilled power to control managers. Thus, it can be said that the ownership structure affects dividend payout policy. Chang et al. (2016) and Firth et al. (2016) showed that there was a

positive relationship between the institution ownership and the portion of dividend payout. Meanwhile, Mulyani et al. (2016) pointed out that public listed companies in Indonesia controlled by the majority of the founding families paid relatively small dividends to their shareholders.

This study aims to reexamine whether the level of ownership structure and profitability of public manufacturing companies in Indonesia affect the dividend payout policy. This topic is motivated to be explored for several reasons. First, few articles have been published that discuss dividend policy for Indonesian companies. Among them, Mulyani et al. (2016) and Setia-Atmaja et al. (2009) analyzed the effect of family ownership on dividend payout policy. Second, Indonesia applies different rules and regulations on the protection of shareholders as well as different tax laws with other countries that will impact dividend policy (La Porta et al., 2000). Third, the manufacturing industry plays a fairly central role in contributing to the Indonesian economy, whose share of the GDP is about 21%. The industry's share of contributions to the GDP has decreased in recent years, thus is would be interesting to examine the dividend policy in the industrial sector in terms of ownership and profitability.

This study contributes to the literature by updating and increasing the understanding of dividends policy and its relationship to the level of ownership and a firm's profitability in the Indonesian capital market. In contrast to Mulyani et al. (2016) and Setia-Atmaja et al. (2009), who reviewed the effect of family ownership and dividend payment in Indonesian firms, the influence of insiders, state enterprises, and foreign ownership on dividend policy in manufacturing companies in Indonesia was analysed in this study. Large majority shareholder may influence the decision on firm dividend policy. Using their power, large shareholder may adopt dividend policy that reduce the private benefit consume by management, yet they can also enforce misappropriate firm's cash flows at the expense of minority shareholders through distribution profit. Mulyani et al. (2016) found that the family as dominated owner pay less dividend in Indonesia, it seemed that there was expropriate cash flow from the company. Insiders, state ownership and foreigner are also appear as the larger proportion ownership in Indonesia. When majority owner is insider, they tend to distribute lower dividend and tunnelling the firm cash flow through accumulating retained earnings (Truong & Heaney, 2007). Firm with higher government ownership is most likely to pay higher dividend in the country with weak protection of minority shareholder, returning the cash flow to the government is dominant than convey the signal to the market (Lin et al., 2017). Meanwhile, the foreigners that have majority ownership in the firm may reduce the dividend payment, this indicates that foreigner has good corporate governance and do not disgorge cash from the firm (Lam et al., 2012). Thus, the existence of the majority shareholder and the relationship with the dividend payout in

the Indonesian company is still interesting to be reviewed to get a better understanding of the dividend policy

In accordance with the signaling theory of Ross (1977) and De Angelo et al. (2004), the results showed that the greater a firm's profits, the higher its profit distribution or dividend payment to shareholders. Government-controlled companies tended to share higher profits with owners, but the dominance of foreign ownership led to a decrease in the dividend payout. Foreign companies tended to cut the dividend payment and guided the profit flow back to the firm. However, these companies may face difficulty-obtaining approval from principals abroad to increase capital in foreign direct investment schemes. Additionally, the association between the insiders as majority owner in the company is negative, but not significant. Thus, it cannot be proven that insiders are engaged in cash disgorging.

The remainder of this paper is structured as follows: the second part describes the literature reviews that are used in this research; the third section discussed data collection methods and research methodologies; the fourth section includes descriptive statistics and analysis of research results; lastly, the fifth section concludes this study and presents the implications.

Literature Review

Profitability and Dividend Payment Policy. Dividends as a distribution of profit to shareholders can be used as a signal to outside parties to indicate that the company's financial condition is healthy enough (DeAngelo et al., 2004; Ross, 1977). In other words, the company does not require financing either from internal or external sources in order to invest in other projects in the future (Vasigh et al., 2010).

Fama and French (2002) through the pecking order model and trade off theory confirmed that the higher a firm's profits, the higher the dividend payout was distributed to shareholders. Empirical findings from several countries prove that when firms earn higher profits, they have a tendency to distribute large profits as well. This conveys a signal to the market that the company is in a healthy financial position and expects an increase in stock prices in the market, as signaling theory suggests (DeAngelo et al., 2004; Ross, 1977). The most recent empirical study supports this theory was by Hwang et al. (2013), for example, who showed consistently that the firms' profit positively impacted the dividend payout of the chaebol conglomerate in South Korea. Firth et al. (2016) and Huang et al. (2011) also indicated that the firm's profitability was still the main factor determining dividends payment in China. The same results were obtained by Jabbouri (2016) in Middle East and North Africa (MENA) countries, and Mulyani et al. (2016) in the Indonesian market.

Ownership Structure and Dividend Payment Policy. Agency theory, initiated by Jensen and Meckling (1976), suggested that a conflict of interest between the management and the owner of the company may alter the firm's stability to please both

parties. Dividend payout is one of the corporate governance mechanisms that can alleviate conflict. This distribution of profits, as described by Jensen (1986), can reduce the company's free cash flow that managers can use for unprofitable projects or for benefiting themselves unwisely. Additionally, Easterbrook (1984) stated that the reduction of free cash flow through dividend payments forced managers to seek external funding so that it could improve the discipline of managers due to the limitations and controls imposed by the creditors. Majority ownership, according to alignment effect theory, as stated by Easterbrook (1984), may provide better monitoring due to the better alignment between majority shareholders and managers. Consequently, this leads to effective policy in dividend payment. Meanwhile, under the entrenchment effect, majority owners have significant power to misappropriate the firm cash flows at the expense of minority shareholders, which leads to inefficient dividend policy.

Furthermore, the strength of management discretions in dividend policy may be caused by the fact that those managers are appointed by majority shareholders, concentrated by groups such as families, institutions, or insiders. These owners have significant power and control over decision-making that must be followed by managers (La Porta et al., 2000). Managers use their discretion to pay out dividends that benefit the majority shareholders. Using power and control, they dredge cash from the company and then distribute small dividends to minority shareholders. La Porta et al. (2000) and La Porta et al. (1999) suggested that ownership of public listed companies was still concentrated within limited parties. Therefore, it is not unusual for the majority shareholder to control the management position in the company. Furthermore, La Porta et al. (2000) developed two dividend policy models. The first model is the outcome model, which states that firms pay higher dividends because of the pressure from the minority shareholders and improvement of corporate governance. Meanwhile, the substitute model emphasizes that the company must maintain its good reputation by paying dividends as a substitute control mechanism. The dividends are used to attract external investors in the capital market, and thus, the insiders are expected to pay higher dividends and reduce the firm's cash flows that could be left for expropriation.

Faccio et al. (2001) studied the impact of corporate governance on dividend payout in an international setting. They showed that dominance shareholders used the dividend payment as a scheme to disgorge firms' cash flows from minority investors. These authors also provided evidence that when group businesses or institutions had large control over a company, they paid higher dividends in European zones than in Asia. Additionally, these authors suggested that expropriated cash from minority shareholders through dividend policy was diminishing in European countries, while this problem was worsening in Asia.

A recent study by Gonzalez et al. (2016) involved companies in several Latin

American countries revealed a negative relationship between the concentration of ownership and dividend payout. This occurred especially when the largest investor in the company was an individual. The authors identified a cash expulsion from the company at the expense of the minority shareholder. Furthermore, if the firm is located in a country that adopts a common law legal system, dividend payouts tend to be higher. Meanwhile, companies that cross-list their stocks in the international market and control them through insiders as majority investors tend to pay higher dividends, in accordance with the signaling hypothesis (Esqueda, 2016). Truong and Heaney (2007) also examined the impact of the majority of shareholders and the policy on dividend policy across countries. They recorded a negative relationship between shareholder concentration and dividend payout policy. When the majority of shareholders were insiders or financial institutions, then dividend payouts tended to be smaller.

Some extant studies focus on the impact of concentration ownership and dividend policy in one country, such as Hwang (2013) in Korea, Mulyani et al. (2016) in Indonesia, and in the United Kingdom (UK) by Khan (2006). Hwang et al. (2013) analyzed the corporate governance behavior of dividend payments by business groups (chaebol). Authors showed that these business groups had good corporate governance; however, they were weak in shareholder protection and paid lower dividend payout compared to the non-group business companies. Additionally, the authors conclude that dividend payments could not be used as a control mechanism in corporate governance in Korea, especially for chaebol.

Empirical tests conducted by Mulyani et al. (2016) noted that family-dominated companies paid fewer dividends in public listed companies in Indonesia. Families' owners tended to use their power to dredge cash from the minority shareholder; this finding is in accordance with Esterbrook (1984). The role of dividends as control mechanisms has not been used to minimize the problem of agency within the company dominated by families in Indonesia. These results arise probably due to the weak protection for minority shareholders from the government and weak law enforcement. In contrast to Mulyani et al. (2016), family-controlled firms pay higher dividends in the European zone (Pindado et al., 2012). The dividend payout policy has been effectively implemented to monitor corporate management because of aligned interests between majority shareholders and managers.

Several studies investigate the impact of majority ownership by institutions, foreign ownership, and state enterprises' ownership on dividend payments. A study in China by Firth et al. (2016) suggested that a mutual fund as the majority owner institution distributed larger dividends, however other financial institutions had no effect on the decision to pay cash dividends. This result is more pronounced if mutual fund owners are controlled by the government and have strong cash flows. When the company is

dominantly owned by foreigners in China and cross-lists its stocks, it tends not to pay dividends (Lam et al., 2012). The higher the proportion of foreign ownership, the smaller the dividend payments are; this conveys a signal to the market that foreigners do not expropriate cash from the firms and have good corporate governance. The difficulty of obtaining additional capital from principals abroad may force such companies to use internal financing, thereby lowering the distribution of profit.

Majority shareholders have better corporate information than minority shareholders, thus there is a positive relationship between ownership concentration and asymmetric information. The concentration of ownership affects the transmission of information to other parties. Insiders tend to restrict disclosure information, resulting in problems in corporate transparency. Lin et al. (2017) proved that companies in China Taipei with asymmetric information between majority and minority shareholders tended to pay lower dividends. However, state-owned enterprises with very high asymmetric information pay higher dividends than private companies. This is due to the weak protection of minority investors and the weak institutional environment in the country. Meanwhile, Gugler (2003) showed that government-controlled companies tended to smooth their dividend payouts.

MATERIALS AND METHODS

Data

This study used financial data from 2009 to 2015 regarding public listed companies from the manufacturing industry sector that were actively traded in the stock market. There were 42 companies in this sector that provided financial reporting from the time periods under examination. However, only 34 firms were included under the data criteria. Those companies must be actively traded and pay dividends each year during the study period. The financial data of the companies were taken from either the financial statements of each of the company's website or from the Indonesian stock exchange website (www.idx.co.id) and iCAMEL. The explanation of ownership data was obtained through the annual report and additional information contained in the financial statements along with public news/ publication.

Variable Definition

Table 1 presented below is a summary of the variables used in this study, along with the definition. The main variables in this study were dividend ratio (Faccio et al., 2001; La Porta et al. 2000, Mulyani et al., 2016), profitability (DeAngelo et al., 2004; Truong & Heaney, 2007), ownership by insiders (Esqueda, 2016; Truong & Heaney, 2007), ownership by state enterprises (Gugler, 2003; Lin et al., 2017), and ownership by foreigners (Gugler, 2003). The ownership variable was calculated simply by calculating the proportion of the number of stocks owned by the owner (insiders, state enterprises, or foreigners) over the total number or value of the company's stock. Some control variables

were also included in this study which were current ratio, debt to equity ratio, size of firm, company growth rate, and economic condition. These control variables were measured by the growth rate of the capital market and were expected to be associated with dividend payout in accordance with the previous findings.

Table 1

Variable definition

Variables	Definition	Reference	Predicted sign
Dividend Payout Ratio (DPR)	Dividend Payout Ratio (DPR) is measured by comparing the amount of dividend per share with earnings per share. Thus the formula is the firm's dividend per share divided by earnings per share.	La Porta et al. (2000), Mulyani et al. (2016)	NA
Profitability	Measured using ROA, net profits over total assets. Alternatively, measuring using Net Profit Margin, net profit divided by total sales	DeAngelo et al. (2004), Jabbouri (2016), Mulyani et al. (2016)	+
Managerial ownership	% of shares held by insiders (managers, directors, executives) over firm's total capital/shares	Esqueda (2016), Truong and Heaney (2007)	-
State ownership	% of shares held by government entities over firm's total capital/ shares.	Gugler (2003), Lin et al. (2017)	+
Foreign ownership	% of shares owned by foreigner investors over firm's total capital/ shares.	Firth et al. (2016), Lam et al. (2012)	+/-
Liquidity	Current Ratio (CR) represents the comparison between firms' current asset and current liability. To measure CR, simply divide current asset with current liability.	DeAngelo et al. (2004), Jensen (1986), Jabbouri (2016)	+
Leverage	Debt-to-Equity measures how big an enterprise is financed by debt rather than with equity capital. Thus, Debt-to-Equity Ratio (DER) is measured by dividing total liabilities by total shareholder's equity.	Gonzalez et al. (2016), Jensen, Meckling (1976), Mulyani et al. (2016)	+/-

Table 1 *(Continued)*

Size	The natural logarithm of the total asset.	Gonzalez et al. (2016), Esqueda, (2016), Mulyani et al. (2016)	+
Growth	Asset growth is measured by dividing the subtracted result of current year total asset and previous total asset with previous year total asset.	Jabbouri (2016), La Porta et al. (2000)	+/-
State of the economy	The yearly return of the market main index (Market Return/ IHSG)	Jabbouri (2016)	+/-

Research Model

This study uses a panel data regression model and the empirical model is written as follows:

$$DPR_{it} = \propto +\beta_1 ROA_{i,t} + \beta_2 NPM_{i,t} + \beta_3 INSD_{it} + \beta_4 STATE_{it} + \beta_5 FORG_{it} + \beta_6 CR_{it} + \beta_7 DER_{it} + \beta_8 GROWTH_{it} + \beta_9 SIZE_{it} + \beta_{10} MR_{it} + \varepsilon_{it} \dots (1)$$

Where,

DPR : Dividend payout ratio
ROA : Return on asset
NPM : Net profit margin
INSD : Proportion ownership by insiders
STATE : Proportion ownership by state-owned enterprises
FORG : Proportion ownership by foreigner
CR : Current ratio
DER : Debt to equity ratio
GROWTH : Growth of firm's assets
SIZE : Size of firm's assets, using ln Asset
MR : Capital market return represented of economic growth

RESULTS AND DISCUSSIONS

Descriptive Statistic

Table 2 reveals that the average dividend payout ratio in manufacturing companies in Indonesia was relatively low at only 25.79% of the profit, although some companies distributed dividends higher than profit margin earned in the same year. The return on assets was at 10.66%. Meanwhile, the proportion of ownership data showed that the average proportion of insiders' ownership was only about 3.56%, while the average share of ownership by state enterprises was much smaller that was 1.53%. The proportion of foreign ownership was much higher at 41.74%.

Result Analysis

Table 3 lists the results of the static panel data regression using the fixed effect model. Time effect was included in data processing to capture the year-specific effect, meanwhile firm-fixed effect was used to analyze, for example, how different types of ownership or size influence the dividend payout.

Table 2

Descriptive statistics

	Mean	Median	Max	Min.	Std. Dev
DPR	0.2579	0.1770	1.3816	-0.6047	0.3105
ROA	0.1066	0.0835	0.6691	-0.0385	0.1006
NPM	0.1058	0.087	0.5178	-0.0548	0.0896
INSD	0.0356	0.000	0.2888	0.0000	0.0802
STATE	0.0153	0.000	0.2630	0.0000	0.0536
FORG	0.4174	0.5005	0.9631	0.0000	0.2758
CR	2.8442	2.0300	13.6500	0.4800	2.4015
DER	1.0597	0.7300	10.1600	0.0900	1.3310
GROWTH	0.1507	0.1179	0.8543	-0.3235	0.1721
SIZE	1.40E+13	2.16E+12	2.45E+14	7.28E+10	3.85E+13
MR	0.2081	0.1046	0.7640	-0.0448	0.2711

Table 3

Regression results, DPR is the dependent variable

	1	2	3
Constant	2.114 *	2.733 **	1.912
	(0.082)	(0.026)	(0.118)
ROA	1.071 ***		1.559 ***
	(0.003)		(0.003)
NPM		0.504	-0.668
		(0.171)	(0.210)
INSD	-1.713	-1.649	-1.789 *
	(0.109)	(0134)	(0.095)
STATE	27.781 ***	24.165 ***	28.700 ***
	(0.001)	(0.005)	(0.000)
FORG	-0.304	-0.325	-3.029
	(0.185)	(0.168)	(0.187)
CR	0.032 *	0.035 **	3.673 **
	(0.055)	(0.049)	(0.034)

Table 3 *(Continued)*

DER	0.031	0.025	3.492 *
	(0.102)	(0.222)	(0.085)
GROWTH	-0.127	-0.054	-0.109
	(0.332)	(0.684)	(0.403)
SIZE	-0.079 *	-0.097 **	-0.073*
	(0.061)	(0.024)	(0.088)
MR	-0.274 ***	-0.272 ***	-0.268 ***
	(0.002)	(0.003)	(0.002)
R square	0.568	0.546	0.574

The first and second column separates profitability variables. In the first column, the variable used is Return on Assets (ROA), while the second column used Net Profit Margin (NPM). These two variables are separated because of the relatively high correlation coefficient rates between the two and hence could cause a multi-collinearity problem. Both results are run with the same level of year between dividend payments and explanatory variables. Following Firth et al. (2016) and Kang et al. (2016), this study also investigated the effect of the lag one-year value of explanatory variables on future dividend payment on column three. These authors explained that some endogenous nature variables such as ownership and other variables did not easily produce conclusive evidence on its relationship with dividends. Thus, to solve this problem partially, the lag of one-year independent variables was regressed and the results are shown in column 3 (three).

Regression results indicated that profitability was one of the factors that must be considered in dividend payment policy. ROA is positively and significantly in association with dividends. The higher the company profit, the greater the dividends that are available to distribute to shareholders. These findings are consistent with the results of Fama and French (2002), Truong and Heaney (2007), as well as the hypotheses signaling theory by Ross (1977). The company conveys good prospects for financial signals to the market. However, the alternative measurement profitability, namely net profit margin (NPM), does not significantly affect dividends.

The proportion of ownership variable showed a negative relationship between insider ownership and dividend payout, however this association is not significant. Thus, it is insufficient to prove that the exploitation of a firm's cash flow by insiders occurs at the expense of the minority shareholders in manufacturing companies in Indonesia. Cash expropriation by the majority shareholder was obtained by Truong and Heaney (2007). In contrast,

Esqueda (2016) proved that dividend payouts by insider-controlled firms were higher in companies that cross-listed their shares in some markets, as suggested by the signaling theory.

Firms that have a larger proportion of state-owned enterprises tend to pay higher dividends, as evidenced by the positive relationship between STATE and dividend payout variables. The coefficient of this variable is relatively high which indicates that the government influences the decision to pay higher dividends. This phenomenon emerges because the government needs more funds from state enterprises to finance the state budget. Political consideration could be one consideration, as managers from political parties appointed by the government would convey the message to the market that they have managed the firm properly and thus pay higher dividends (Gugler, 2003). Another explanation is that the government reduces the availability of cash flows for managers, so that it is not used for managers' personal benefit, or because of the asymmetry information between majority shareholders and minorities, such as in the case of Taiwan (Lin et al., 2017).

The foreign ownership variable indicates a negative relationship. This negative relationship indicates the possibility that these foreign firms cut dividends as they put most of the profits back into capital. This may happen because of the difficulty to get approval from principals abroad to increase capital in foreign direct investment schemes.

Furthermore, the control variable, liquidity, had a positive and significant sign, and leverage had a positive relation and is also significant. The liquidity ratio as measured by CR (current ratio) showed a positive relationship result on dividend payout. A liquid company seems to have higher availability of current assets, which can be converted into cash easily to pay higher dividends. Debt and capital ratio variable (DER) exhibited a positive link with dividends, but with a very weak level of significance. These positive signs provided an indication that the higher the leverage (DER) the greater the company's dividend payments made by the company. This is in contrast to the theory presented by Jensen (1986), who stated that leverage could be used as a corporate control mechanism. External funding sources are part of the corporate governance, whereby with increasing debt, it will allow strict control of creditors to the company's cash flow. These differing results might occur due to a lack of supervision from the creditor to the company in the case of dividend payout decisions. Other possibilities are the strong power of majority shareholders and low-level protection of shareholders' rights and creditors (La Porta et al., 2000).

Other control variables such as growth or asset growth, firm size, and market growth all demonstrated a negative sign relationship. Increased asset growth and asset size required relatively large funding for operational and investment, so funds internally generated by firms needed to flow back to the company. This led to lower dividend payouts. This result is in line with the findings of previous studies such as

Faccio et al. (2001), Gonzalez et al. (2016) and Hwang et al. (2013).

Furthermore, economic growth, which proxies for the growth rate of the market index, showed a negative relationship with dividend payout policy. This finding is in line with Jabbouri's (2016) study in the MENA market. This relationship might arise because in the economic expansion, investors are more concerned with capital gains, so they might have less focus on the payment of dividends. This fact also supports the findings obtained by Mitton, 2002, Rajan and Zingales (1998), Shleifer and Vishny (1997), as in a booming market period, good corporate governance mechanisms are not the main focus of regulators and investors, so the dividend payout is not a concern of investors.

CONCLUSIONS

This study aims to reevaluate the effect of firms' profitability on dividend policy. It further reexamines the effect of the large proportion of company ownership by insiders, state enterprises, and foreigners on dividend payout policies. Dividend payment is a control mechanism used in corporate governance to alleviate conflict between shareholders and managements (Jensen, 1986; Jensen & Meckling, 1976). Payment of dividends results in the reduced availability of cash flows in the company, which can be applied to reduce management discretion for unfavorable investments or for personal benefits (Easterbrook, 1984). Furthermore, the concentration of company ownership in certain groups has an impact on the higher discretion on the dividend payout policy. Managers appointed by majority shareholders make decisions on dividend payout, which benefits the majority shareholders. Without sufficient controls, majority shareholders expropriate firms' cash flows and distribute lower dividends to minority shareholders (La Porta, 1999, 2000). The findings reveal that an increase in profitability affects dividend payout positively; this is in line with the signaling theory by Ross (1977). This finding conveys a good signal to investors on the prospect of a company's financial condition (Benavides et al., 2016; DeAngelo et al., 2004; Fama & French, 2002; Truong & Heaney, 2007). An increase in the proportion of ownership by insiders consistently has a negative relationship with dividends, but it is not significant. There is probably early indication of exploitation of the company's cash flows at the cost of minority shareholders in the Indonesian capital market and to prove this, more samples are needed in the research. Meanwhile, the higher the government's ownership of the firm, the higher the dividend payout would be. Political elements and the profit contribution of state enterprises for government expenditures and high information asymmetries are important factors in the dividend policies among companies with high concentrations of ownership by state enterprises (Gugler, 2003, Lin et al., 2017). Ownership by foreigners shows a negative relationship with dividend payout. The difficulty of obtaining additional capital from foreign principals may be the cause of reduced

dividend payouts, while the foreigners rely more on internal funding sources. Another possibility, in line with Lam et al. (2012), is that foreigners investing in Indonesia do not dredge the firm's cash flow.

These results provide implications regarding policy makers, regulators, and investors who invest in the Indonesian capital market. Policy makers should pay attention to the existence of cash flow extraction symptoms by majority shareholders, especially in companies that are controlled by insiders. It leads to losses on minority shareholders. To mitigate this problem, firms need to enhance the transparency of corporate management in financing, improvement of corporate governance, and increased protection in shareholder rights. Financial Authority Services should also apply strict supervision of a firm's corporate governance that results in the loss of minority investors. Investors who expect to have incremental dividend payments regularly should consider the owners of the company. Government-controlled firms are the more appropriate option for this type of investor.

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National Framework, Market Structure, and Bank Stability: Evidences from ASEAN-5 Countries

Dony Abdul Chalid*, Liyu Adhi Kasari Sulung, Muhammad Miqdad Robbani and Muzdalifah Hambali

Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

This study aims to identify the relationship between bank stability, national framework, and market structure and thus enlighten the policy-making process in regional banking consolidation. The analysis was restricted to 64 listed commercial banks in Indonesia, Malaysia, Singapore, Thailand, and the Philippines, also known as ASEAN-5 by using the fixed effect model. This study found the following: a higher level of political stability had increased the level of bank stability; a higher level of the rule of law decreased the level of bank stability; a higher level of market concentration decreased the level of bank stability. These findings highlight several important implications. Firstly, the improvement of democratic institutions and systems that lead to political stability is needed to support performance improvement in the banking sector. Secondly, the legal framework improvements do not necessarily increase the bank stability. Thirdly, an increased competition in the banking industry is needed to increase the stability of the bank. Fourthly, efforts to integrate the financial system in ASEAN countries must be followed by an installation of improvements in governance and regulatory conditions.

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E-mail addresses:
donny.abdul@ui.ac.id (Dony Abdul Chalid)
liyu.adhi@ui.ac.id (Liyu Adhi Kasari Sulung)
muhammad.miqdad@ui.ac.id (Muhammad Miqdad Robbani)
muzdalifah11@ui.ac.id (Muzdalifah Hambali)
*Corresponding author

INTRODUCTION

The aftermath of the Asian Financial Crisis in 1997 and the Global Financial

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Crisis in 2008 made the banking industry concentration the central issue in a dynamic regional group entitled the Association of Southeast Asian Nations (ASEAN). This consolidation aims to empower the position of banks' capital, managerial capabilities, and banking regulation in this region after the crises. By considering the role of the national framework and market structure, this paper broadens the current stream of the previous literature relating bank stability to enlighten policy making in regional banking consolidation.

The national framework showed by legal institutions plays a significant role in the financial development of the country (La Porta et al., 1997). They apply the law and legal variables using the quality of law enforcement, law functions, and legal protection quality of investors in 49 countries. They show that nations with sound legal environments have better systems to protect their investments and hence expand their financial market. Instead of capital market development, the legal system also begins playing a vital role in affecting the bank stability of post-recovery from the Asian and global financial crises (Williams, 2014). Moreover, Demirgüç-Kunt et al. (2003) showed that institutional indicators of a country influenced bank performances in term of cost of financial intermediation.

Notwithstanding the law and legal institutions, the role of political stability also influences the development of the financial market. Several empirical studies argue that political stability has more powerful impact on financial development than the legal system (Roe & Siegel, 2011; Roe, 2006). Roe (2006) confirmed through his law and finance literature that the political economy performed better than the legal system regarding its impact on capital markets in developed countries. Furthermore, Roe and Siegel (2011) found that the political economy was more effectively positioned to influence the development of the financial market than the legal system. Additionally, Tarr (2010) also showed that political and other governance failures caused the global financial crises in the US but not yet in the developing market. Thus, to inform the policy reform of bank risk, the first distinctive feature of this paper is its examination of governance framework factors that apply political and legal system variables to influence bank stability in the growing financial market region, especially in Southeast Asia countries. This policy reform is essential, since banks provide a central channel for financial intermediaries in developing countries (Chan et al., 2015).

Second, this paper also proposes an opposing hypothesis of market concentration regarding financial stability. Derived by structure - performance hypothesis, concentration - the stability hypothesis suggests that banks in the more concentrated market have more capital buffer and hence affect high stability in bank performance (Chan et al., 2015). Contrary to the previous hypothesis of concentration, the fragility hypothesis implies that banks in more concentrated markets face higher risk, since banks tend to undergo risky activities to

earn better performance. Many streams of literature have explored concentration on stability but most of them refer to the Lerner index and concentration ratio as the proxy of market structure (Fiordelisi & Mare, 2014; Maudos & de Guevara, 2007; Turk Ariss, 2010). Few studies focus on the Herfindahl-Hirschman Index (HHI) to measure the market structure, even though Beck et al. (2006) stated that HHI was the appropriate variable to measure the whole market concentration of the industry. Thus, this study uses another measurement of market structure concentration to provide the distinctive feature from previous empirical works.

Third, this paper also offers an advantage of bank-specific factors such as credit growth, profitability, and income diversification to affect bank stability. This study measures bank stability using the z-score, which is also applied by Ashraf (2017), Fiordelisi and Mare (2014), and Williams (2014). Also, we choose to examine ASEAN-5 countries, which exhibit financial consolidation among banks in the region to reform financial policy after the Asian financial crises.

This paper is organized into several sections. Section one explains the background of our research. Then, Sections two and three describe the literature reviews and methodology. Section four explains the analysis and discussion about the research results. Finally, Section five provides the conclusion of this paper.

Literature Review and Hypotheses

Keefer (2007) showed that the political variable was an insignificant proxy in the determinant of financial development. Meanwhile, Haber et al. (2003) argued that the banking industry was very connected to government policy and politics. Moreover, Chan et al. (2015) also supported Haber et al. (2008) by showing that greater political stability improved bank efficiency, which at the same time increased bank stability. Furthermore, Roe and Siegel (2011) supported the relationship between political stability and banks, which indicated that political stability would ensure that creditors recovered high loans and thus faced low risk for banks. Hence, we argue the following hypothesis for the relationship between political stability and bank risk:

H_1: *Ceteris paribus*, a higher level of political stability is positively associated with bank stability.

The legal system also plays a vital role in affecting the bank stability of post-recovery from Asian and global financial crises (Williams, 2014). There are two types of result in terms of the relationship between legal rule and bank risk. First, a legal institution with excellent performance increases the information spread and hence increases credit lending, reduces credit cost, and lowers bank risk (Brown et al., 2009). This statement is also supported by Brockman and Unlu (2009), who showed that firms tended not to give dividends in countries with low levels of credit rights,

because those countries did not provide grants to protect creditors from bankruptcy. Fang et al. (2014) used information from 15 emerging countries in Eastern Europe to show that banks' financial stability increased substantially after these countries reformed their legal institutions. Therefore, the first consensus is that a high level of legal quality will result in a low level of bank risk.

Meanwhile, Houston et al. (2010) showed contrary results, which offered the second consensus. High legal quality led bank to reduce supervision cost and bank operational cost, which led to top access to the credit market and thus increasing the bank risk. Analysing an international sample of banks from 98 countries over the period 1998-2007, Ashraf (2017) found that banks took on higher risk in countries that enjoyed strong legal protection as creditors. Therefore, a second consensus relates that a high level of legal quality results in a high level of bank risk. Hence, we argue the following hypothesis:

H_2: *Ceteris paribus*, the quality of legal or law system has a significant impact on bank stability.

Two consensuses exist regarding the relationship between market concentration and bank stability. First, market concentration has a positive relationship with the stability of the banking system; this happens because banks can diversify their risk in the banking system with high concentration (Beck et al., 2006; Fiordelisi & Mare, 2014). Nguyen et al. (2012), using data from four South Asian banking markets (Bangladesh, India, Pakistan, and Sri Lanka) during the period of 1998-2008, indicated that banks with greater market power became more stable when they diversified across both interest- and non-interest income activities.

Second, based on contrary views, some studies find a negative relationship between concentration and bank stability. Barth et al. (2004), Boyd et al. (2006) and Schaeck et al. (2009) found that the stability of banks decreased in the more concentrated banking markets. Boyd et al. (2006) used individual bank data and z-score as the measurement of insolvency risk of the bank. Barth et al. (2004) showed that the more concentrated the market was with more bank entry barriers, the less bank stability would arise in the banking system. Moreover, Fu et al. (2014) used information from 14 countries in Asia Pacific to find that concentration in the banking industry fosters financial fragility. Beck et al. (2013) found that variation in the relationship between bank competition and bank stability depended on market, regulatory, and institutional conditions. Since there is ambiguity in both streams of the banking stability and concentration relationship, conflicting hypothesis is constructed as follows:

H_3: *Ceteris paribus*, market concentration has a significant impact on bank stability.

MATERIALS AND METHODS

The balanced panel data from the period of 2007 to 2014 were used in this study.

The fixed-effect model to control bank characteristics in each model were applied with the generalised least square to fit the best linear unbiased estimation. Bank-specific data were retrieved from the balance sheet and income statement of each bank in ASEAN-5 countries. The analysis was restricted to banks listed in ASEAN-5 (Indonesia, Malaysia, Singapore, Thailand, and the Philippines) from 2007 to 2014. This study aims to identify the determinants of bank stability. The determinants were categorised into four groups which are national framework, market structure, bank specifics, and economic conditions.

In this study, the z-score is used as the measurement of the bank stability variable, which has been used extensively in the banking literature (Boyd et al., 2006; Demirguc-Kunt & Huizinga, 2010; Iannotta et al., 2007; Laeven & Levine, 2009). The z-score is computed as the current period t return on assets (ROA) and the sum of the capital-asset ratio (CAR) divided by the standard deviation of the return on assets computed within each country (c) in year t. HHI in the loan market (HHI Loan) is used as a proxy for bank concentration. The HHI loan data were retrieved from EIKON and central bank's website of each country. Concentration index is (HHI Loan) calculated as the sum of the squares of the market shares (considering loans) of each bank (i) in a specific country (c) in a determined year (t).

HHI has a value between 0 and 1. The higher the HHI loan indicates, the higher the concentration of a market. The market structure of banking, which has more concentration or dominance over a few banks, is indicated by a higher HHI loan. Some literature uses the Herfindahl-Hirschman index (HHI) as the variables to measure market power (Boyd et al., 2006). However, this variable and the n-firm concentration are ambiguous determinants (Berger et al., 2004). This is because the entry and barrier activity cannot be reflected in concentration variables to measure the degree of competitiveness in the banking industry (Beck et al., 2006). On the contrary, another consensus suggests HHI as an excellent tool to measure the entire market distribution by capturing the structural changes of the industry (Berger et al., 2009; Cetorelli, 1999). Berger et al. (2009) also added that HHI played a prominent role in benchmarking the concentration variables and in the antitrust law implementation process in banking.

The political stability and the rule of law are used as proxies of the national framework. These two indicators are believed as important factors to determine the bank stability in ASEAN-5 countries. The political stability index represents the perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means (Chan et al., 2015). Meanwhile, the rule of law shows the quality of law enforcement, law functions, and protection quality of legal investors (La Porta et al., 1997). The data regarding political stability and the rule of law obtained from the World Bank's Worldwide Governance Indicators is presented in Table 1.

Bank-specific factors and economic conditions were included in the estimation

model. Previous empirical works provided insight as to how banks are affected by these variables (Arogaki et al., 2011; Beck et al., 2013; Fang et al., 2014). Bank-specific factors consist of capitalisation, credit growth, credit quality, diversification, operating efficiency, profitability, and bank size. Meanwhile, regional economic condition variables consist of real GDP growth, unemployment rate, housing price index, inflation rate, and real interest rate. Political stability and the rule of law represent the national framework, and HHI loans represent market structure. The descriptions of all variables can be seen in Table1.

Table 1

Description of variables

Measurement	Variable	Description
Z_SCORE	Bank Stability	The sum of the current period t return on assets (ROA) and the equity ratio (equity over total assets) divided by the standard deviation of ROA computed within each country (c) in year t
CAP	Capitalization	Equity capital-to-assets
CREDIT	Credit Growth	Loans-to-assets
CREDITQLY	Credit Quality	Loans and lease loss provision-to-total loans
DIV	Diversification	Non-interest income-to-total income
OCA	Operating Efficiency	Non-interest expenses-to-total assets
ROA	Profitability	Net pre-tax income-to-total assets
SIZE	Bank Size	Log of total assets-to-number of banks
GDP	GDP Growth	Inflation adjusted percent change in GDP
UNMPL	Unemployment Rate	Unemployed-to-labour force
HPI	Housing Price Index	Housing Price Index
INFL	Inflation Rate	Percent change in regional CPI
RIR	Real Interest Rate	Nominal lending rate adjusted for regional inflation
HHI_LOAN	Market Structure (Concentration) Loan)	Concentration Index (Herfindahl-Hirschman Index) calculated as the sum of the squares of the market shares (considering loans) of each bank (i) in a specific country (c) in a determined year (t)
PSTAB	Political Stability	Political stability in each ASEAN-5 country
RLAW	Rule of Law	The rule of law in each ASEAN-5 country

Given the considerations of the theoretical and empirical literature provided above, the following empirical model to study the relationship between bank stability, competition, and regulation (the latter in the form of capital requirements, activity restrictions, and supervisory power) were specified. The research model used in this study is as follows:

$$Z\_SCORE_{it} = \alpha_{it} + \beta_1 Z\_SCORE_{it-1} + \beta_2 CAP_{it} + \beta_3 CreditGr_{it} + \beta_4 CreditQly_{it} + \beta_5 DIV_{it} + \beta_6 OCA_{it} + \beta_7 ROA_{it} + \beta_8 SIZE_{it} + \beta_9 GDP_{it} + \beta_{10} UNMPL_{it} + \beta_{11} HPI_{it} + \beta_{12} INFL_{it} + \beta_{13} RIR_{it} + \beta_{14} HHI\_LOAN_{it} + \beta_{15} PSTAB_{it} + \beta_{16} RLAW_{it} + \varepsilon_{it} \quad \ldots (1)$$

RESULTS AND DISCUSSIONS

A descriptive statistic test was conducted to determine the data description of the research variables. The result of a descriptive statistics test is presented in Table 2.

Table 2

Descriptive statistics

	Observations	Mean	Median	Maximum	Minimum	Std. Dev.
Z_SCORE	456	2.534	2.488	4.953	0	0.756
CAP	510	0.104	0.099	0.171	0.062	0.029
CREDITGR	495	0.167	0.147	0.506	-0.1	0.159
CREDITQLY	503	0.008	0.006	0.027	-0.002	0.007
DIV	510	0.307	0.329	0.732	0.014	0.186
OCA	510	0.03	0.028	0.125	0.008	0.016
ROA	510	0.013	0.015	0.05	-1.286	0.059
SIZE	510	6.794	6.833	8.522	4.702	0.85
GDP	512	0.051	0.06	0.152	-0.015	0.023
UNMPL	512	-0.003	-0.003	0.002	-0.012	0.004
HPI	512	1.669	0.613	26.9	-17.475	6.569
INFL	512	0.045	0.047	0.095	-0.008	0.022
RIR	512	0.035	0.044	0.118	-0.039	0.034
LI	455	0.259	0.292	0.642	-0.539	0.165
HHI_LOAN	456	0.147	0.142	0.338	0.109	0.051
PSTAB	512	-0.763	-0.85	1.34	-1.77	0.666
RLAW	512	-0.266	-0.54	1.78	-0.68	0.546

Analysis of Table 2 reveals some important information regarding the sample. There is various information that is interesting to highlight. The first is the dependent variable of Bank Stability (z-score), whose mean is 2.53. Second, related to bank-specific characteristics, the average value of the equity capital to asset ratio (CAP) is 10.4%, which exceeds the minimum requirement of capital structure required by Basel Accord. Additionally, the profitability level (ROA) is relatively low, as we can see from the mean, which is only 1.3%. Third, the means of the variables of political stability (PSTAB) and Rule of Law are negative. From this we can say that the quality of political stability and rule of law in ASEAN-5 countries are relatively low.

A series of tests were conducted to ensure the compliance of the result to the classical assumptions. The first assumption to be met is that the model is free from multicollinearity problems. In testing this assumption, the researcher analyses the person correlation number between variables. The results indicate that no multicollinearity problem exists, since all correlations between each independent variable are low (see Table 3).

The fixed-effect with the generalised least square model was used to fit best the linear unbiased estimation. According to the robustness check, some assumption violations were found such as autocorrelation and heteroscedasticity. The basic model was further augmented with the joint effect of credit growth, bank concentration, market power, and institutional framework. Table 4 reports the benchmark set of findings. The table reports the regressions from the empirical model considered previously using all of our data. The table reports eight specifications or models. The independent variables through are varied into several models to check for model robustness. The profitability variable proxy by return on assets (ROA) is also added as the further check of bank-specific factors. As a result, the independent variables show consistent signs and significance confirming the robustness of our models, including the return on assets. Table 4 shows the coefficient for the government framework represented by political stability and the rule of law variables.

Model 4 shows that high political stability increases bank stability, which is significant at the 5% level. This result is supported by Chan et al. (2015) and Roe and Siegel (2011). The literature relates that greater political stability improves bank efficiency, which at the same time increases bank stability. This happens because political stability ensures that creditors have good recovery of loans and a high level of bank stability. Based on the results from Models 7 and 8, this study also shows the negative relationship between the rule of law and bank stability, since the high level of legal quality leads banks to reduce supervision costs and bank operational costs. Hence, this will lead to high access to enter the credit market and thus decrease bank stability. This result supports Houston et al. (2010), who showed the determinants of bank stability using the legal factor.

Table 3

Correlation matrix

	CAP	CREDITGR	CREDITQLY	DIV	OCA	ROA	SIZE	GDP	UNMPL	HPI
CAP	1.000	0.082	-0.009	-0.092	0.330	0.232	-0.413	0.108	-0.059	-0.199
CREDITGR	0.082	1.000	-0.062	-0.106	0.045	-0.007	-0.139	0.269	-0.260	-0.113
CREDITQLY	-0.009	-0.062	1.000	0.062	0.385	-0.139	-0.017	-0.053	-0.091	-0.337
DIV	-0.092	-0.106	0.062	1.000	-0.156	0.225	0.539	-0.009	0.226	0.292
OCA	0.330	0.045	0.385	-0.156	1.000	-0.183	-0.503	0.102	-0.143	-0.314
ROA	0.232	-0.007	-0.139	0.225	-0.183	1.000	0.251	0.055	-0.022	0.006
SIZE	-0.413	-0.139	-0.017	0.539	-0.503	0.251	1.000	-0.137	0.260	0.417
GDP	0.108	0.269	-0.053	-0.009	0.102	0.055	-0.137	1.000	-0.506	0.168
UNMPL	-0.059	-0.260	-0.091	0.226	-0.143	-0.022	0.260	-0.506	1.000	0.207
HPI	-0.199	-0.113	-0.337	0.292	-0.314	0.006	0.417	0.168	0.207	1.000
INFL	0.168	-0.016	0.133	-0.286	0.284	0.029	-0.419	0.259	-0.330	-0.431
RIR	0.102	-0.045	-0.066	0.137	0.033	0.050	0.059	-0.288	0.393	0.147
LI	-0.028	-0.076	0.101	0.252	-0.132	0.076	0.148	-0.068	0.153	0.062
HHI_LOAN	-0.156	-0.100	-0.184	0.260	-0.342	-0.072	0.478	-0.067	0.247	0.344
PSTAB	-0.273	-0.055	-0.287	0.154	-0.368	-0.039	0.461	0.087	0.083	0.513

Table 3 *(Continued)*

	INFL	RIR	LI	HHI_LOAN	PSTAB	RLAW
CAP	0.168	0.102	-0.028	-0.156	-0.273	-0.345
CREDITGR	-0.016	-0.045	-0.076	-0.100	-0.055	-0.124
CREDITQLY	0.133	-0.066	0.101	-0.184	-0.287	-0.260
DIV	-0.286	0.137	0.252	0.260	0.154	0.254
OCA	0.284	0.033	-0.132	-0.342	-0.368	-0.478
ROA	0.029	0.050	0.076	-0.072	-0.039	-0.086
SIZE	-0.419	0.059	0.148	0.478	0.461	0.607
GDP	0.259	-0.288	-0.068	-0.067	0.087	-0.066
UNMPL	-0.330	0.393	0.153	0.247	0.083	0.218
HPI	-0.431	0.147	0.062	0.344	0.513	0.608
INFL	1.000	-0.364	-0.201	-0.345	-0.197	-0.426
RIR	-0.364	1.000	0.082	0.019	0.075	0.010
LI	-0.201	0.082	1.000	0.046	-0.127	-0.018
HHI_LOAN	-0.345	0.019	0.046	1.000	0.571	0.779
PSTAB	-0.197	0.075	-0.127	0.571	1.000	0.790

Note: This table reports the Pearson correlation coefficients between each bank-level pair

In the market structure aspect (see Models 3 and 4), the negative direction of the HHI Loan indicates an adverse effect of the variable on the stability of the bank. The more concentrated market will decrease bank stability, because there are many restrictions on banking activities, and entry barriers in the more concentrated market will decrease the bank stability. Banks with a larger market share that therefore could consider themselves too big to fail might also exploit increasing competition to take more aggressive risks (Beck et al, 2013). This finding supports previous studies from Boyd et al. (2006), Schaeck et al. (2006), and Fu et al. (2014).

All models consistently show that credit growth significantly affects the z-score with negative direction. The negative relation of credit growth indicates that bank with high credit growth will have low stability. Altunbas et al. (2011) showed that large banks with aggressive loan growth were less stable. The results are also consistent with several previous types of research (Demirguc-Kunt & Huizinga, 2010). In conclusion, a high level of credit growth leads to bank instability, which in the long term can cause financial crisis.

All models in Table 4 confirm that profitability has a positive effect on bank stability. These results are consistent with studies conducted previously by Ghosh (2016), who researched bank stability using NPL. The result leads to the conclusion that high profitability decreases risk level and at the same time increases bank stability. This result also confirms the findings of

Table 4

Regression results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Z_SCORE (-1)	0.236***	0.233***	0.229***	0.218***	0.224***	0.221***	0.235***	0.223***
	(0.035)	(0.035)	(0.033)	(0.032)	(0.032)	(0.031)	(0.033)	(0.032)
CREDITGR	-0.351***	-0.369***	-0.261***	-0.291***	-0.273***	-0.280***	-0.243**	-0.276***
	(0.097)	(0.097)	(0.092)	(0.088)	(0.090)	(0.089)	(0.094)	(0.088)
ROA					4.230***	4.547***	3.398**	4.343***
					(1.388)	(1.288)	(1.550)	(1.310)
DIV		-0.196**	-0.236**	-20.788***		-0.253***	-0.259***	-0.256***
		(0.091)	(0.095)	(4.002)		(0.093)	(0.099)	(0.094)
HHI_LOAN			-21.544***	-0.237**	-20.963***	-21.777***	-22.269***	-21.157***
			(4.240)	(0.092)	(4.098)	(4.008)	(4.330)	(3.986)
PSTAB				0.284***	0.232***	0.242***		0.317***
				(0.077)	(0.074)	(0.073)		(0.076)
RLAW				-0.282***			-0.172**	-0.278***
				(0.082)			(0.075)	(0.083)
CREDITQLY	-7.786***	-6.957***	-5.306**	-4.557*	-4.636*	-3.663	-3.335	-2.963
	(2.471)	(2.400)	(2.454)	(2.368)	(2.425)	(2.308)	(2.497)	(2.343)
OCA	4.244**	4.352**	2.486	2.275	1.019	-0.220	0.113	-0.113
	(1.910)	(1.769)	(2.551)	(2.406)	(2.278)	(2.177)	(2.530)	(2.192)
SIZE	0.243**	0.244**	-0.057	-0.249*	-0.328**	-0.359***	-0.128	-0.359***
	(0.115)	(0.113)	(0.129)	(0.136)	(0.131)	(0.126)	(0.127)	(0.126)

Table 4 *(Continued)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
GDP	1.520*	1.773**	0.700	1.183	0.622	0.896	0.634	1.106
	(0.786)	(0.794)	(0.752)	(0.737)	(0.739)	(0.730)	(0.750)	(0.730)
UNMPL	10.087*	9.870*	5.649	3.371	2.752	3.362	7.552	4.159
	(5.579)	(5.606)	(5.120)	(5.099)	(5.155)	(5.062)	(5.190)	(5.075)
HPI	-0.003	-0.003	-0.005	-0.005*	-0.006**	-0.006*	-0.002	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
INFL	3.342***	3.219***	2.562***	3.178***	2.672***	2.464***	3.104***	3.187***
	(0.972)	(0.977)	(0.928)	(0.934)	(0.912)	(0.897)	(0.941)	(0.922)
RIR	2.489***	2.581***	3.023***	3.340***	3.096***	3.197***	3.183***	3.372***
	(0.550)	(0.546)	(0.530)	(0.506)	(0.528)	(0.513)	(0.546)	(0.514)
CAP	0.309	0.593	1.584*	1.356*	0.428	0.939	1.499*	0.984
	(0.804)	(0.814)	(0.846)	(0.818)	(0.752)	(0.773)	(0.824)	(0.768)
C	-0.010	0.008	5.328***	6.678***	7.312***	7.711***	5.863***	7.548***
	(0.818)	(0.806)	(1.354)	(1.347)	(1.319)	(1.279)	(1.357)	(1.274)
Bank fixed effect	Y	Y	Y	Y	Y	Y	Y	Y
R2	0.828	0.834	0.858	0.880	0.865	0.877	0.850	0.879
Adjusted R2	0.792	0.798	0.829	0.852	0.834	0.849	0.816	0.851
F-Statistic	23.086***	23.593***	27.343***	31.802***	28.351***	30.966***	24.675***	31.047***
Observation	389	389	343	343	343	343	343	343

Note: (1) The dependent variable for models 1 to 8 is the z-score, (2) all regressions were estimated using country- and time-fixed effects and clustering at the bank level, (3) standard errors are in parentheses, and (4) *,**, and *** denote a significance at 10%, 5%, and 1% levels respectively.

Messai and Jouini (2013) and Louizis et al. (2012), who revealed the negative influence of the profitability variable (ROA) on risk. This supports the hypothesis of lousy management by Berger and DeYoung (1997), who said that highly profitable banks had less incentive to engage in high-risk activities. In this case, profitability has the positive impact on bank stability.

According to Table 4, we also find that diversification consistently affects bank stability in all models tested. Income diversification negatively determines bank stability because of high risk from non-interest income. Sitroh (2004) found that income diversification through non-interest income becomes riskier since it had high volatility and uncertainty, especially in developing countries. Moreover, the study by Demirguc-Kunt and Huizinga (2010) revealed that banks which relied prominently on generating noninterest income or attracting non-deposits were riskier. These findings support the hypothesis from prior studies that income diversification can lead to low bank stability (DeYoung & Roland, 2001; Meslier et al., 2014)

CONCLUSIONS

This paper has investigated the association between bank stability, national framework, and market structure in the context of 64 commercial banks from five Southeast Asian countries (Indonesia Malaysia, Singapore, Thailand, and the Philippines). By using the balanced panel in the period from 2007 to 2014, the fixed-effect model is used to control for bank characteristics in each model. This study shows a significant result of the influence of governance indicators on bank stability where the political stability is positively affect bank stability. This study also reveals the negative relationship between the rule of law and bank stability. Finally, that the stability of banks becomes lower in a more concentrated banking markets. This happens because there are many restrictions on banking activities and entry barriers in a more concentrated market, which decreases bank stability. The findings highlight several important implications, especially for policymakers in the Southeast Asia Region. Stable political conditions increase banks' stability. The improvement of democratic institutions and systems that lead to political stability is needed to support performance improvement in the banking sector. However, legal framework improvements do not necessarily increase bank stability, as required legal rule can increase risk-taking behaviours among banks. Moreover, increased competition in the banking industry is needed to increase the stability of the bank. These results also have regional implications. Efforts to integrate the financial system in ASEAN countries must be followed by the installation of improvements in governance and regulatory conditions and competitive conditions in each country, since the political and legal frameworks play important roles in banking industry stability. The reformation efforts by all governments can support the stability of financial systems that will be integrated. This study illuminates the importance of national framework in influencing bank

stability. However, this research only focuses on two issues: political and legal. Further research is needed to examine other factors such as the development of financial systems, fiscal and monetary policies, and economic structures.

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Determinants of Economic Growth in PIIGS Countries

Erfan Fiddin[1]*, Zahrin Haznina Qalby[2] and Hari Puspo Nur Cahyono[1]

[1]*The University of Illinois at Urbana-Champaign, Economics Department, Illinois, 61801, USA*
[2]*The University of Illinois at Urbana-Champaign, Gies College of Business, Illinois, 61801, USA*

ABSTRACT

PIIGS refers to members of the European Union that are struck hardest by the recession. These countries are Portugal, Ireland, Italy, Greece, and Spain, which all have a low recovery rate, resulting in slow economic growth. This paper aims to assess which major factors contribute to the economic growth of PIIGS under existing crisis circumstances. In this paper, economic growth is measured by gross domestic product (GDP) growth, with independent variables utilised in the basic model specified as foreign direct investment, inflation, domestic savings, net export, labour force, tertiary education, private debt and public debt. Dummy variables representing country, effect, and time trend are also included in the basic model. Further model specifications are built and tested to check for robustness. The observation covers the pre- to post-financial crisis period, from 2002 to 2013. A multiple linear regression analysis estimated using ordinary least squares (OLS) and two-stage least squares (2SLS) with instrumental variable was used to solve the endogeneity issue. The result revealed that the net export, domestic savings, labour supply, lagged private debt, and lagged public debt were those that seemed to have significant impacts on growth. Domestic savings, labour supply, and lagged public debt were found to have a positive impact on growth, whereas net export and lagged private debt were surprisingly the other way around. This negative effect is arguably due to the negative value of net export itself. This is driven by the shrinking domestic output and exposure to lower confidence in the economy, withholding households and firms

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E-mail addresses:
efiddin2@illinois.edu (Erfan Fiddin)
zqalby2@illinois.edu (Zahrin Haznina Qalby)
hpn2@illinois.edu (Hari Puspo Nur Cahyono)
*Corresponding author

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from expansion. Another interesting finding was about the positive effect on growth observed for labour regarding secondary education and the negative effect for labour regarding tertiary education. Both were observed before solving the endogeneity issue. These findings have important policy implications in the attempt to promote PIIGS' economic growth.

Keywords: Debt, domestic savings, economic growth, foreign direct investment, human capital, inflation, labour force, net export, PIIGS

INTRODUCTION

According to the IMF, in 2008 the world faced the worst economic disaster since the Great Depression of 1929-1930. It began with a subprime mortgage crisis in 2007 in the United States (US), leading to a financial crisis that spread quickly throughout the world. Whereas initially Portugal, Italy, Greece, and Spain (PIGS) already suffered from sluggish economic growth, the crisis made their situation even harder and caused Ireland to join the group, renamed PIIGS. Being a part of the European Union (EU) should be beneficial, but data shows that they have never been able to reach their initial growth level.

To assess the puzzling sluggish economic growth, the analysis on this paper is based on the Neoclassical Growth Model of Solow. This model attempts to describe that shocks in capital stock, labour supply, and technology have essential roles in explaining the variation in economic growth. In this paper, the model will be further expanded by adding relevant macroeconomic variables as covariates to help in describing the effect of the financial crisis effecting PIIGS.

Higher saving rates followed by a higher capital stock are the first two variables expected to explain the level of potential output of an economy. Some research reveals a positive relationship between these two and economic growth. Another factor is human capital. Whereas Mankiw (2015) debated its effect towards economic growth, Kydland and Prescott (1982) finds that the literacy rate of the labour force effects economic output. As a result, a positive impact regarding the quality of human capital is expected.

Other substantial factors for economic welfare include foreign direct investment (FDI), net export and inflation. Net export can determine the contribution of external demand to the output of an economy. Alternatively, FDI shows that external investment flows indicate the confidence of foreign investors in the internal factors of production in an economy. Abel and Bernanke (2012), Mankiw (2015), and Aghion and Hewitt (2005) supported this argument, and because of free movement of capital and labour within the EU, positive and significant effects of FDI and net export are expected to be present. However, Xing and Pradhananga (2013) and Borenzstein et al. (1998) revealed the ambiguous effects of inflation. Some papers find negative impact, and others find positive impact instead (Barro, 1995). This research will examine the effect of inflation based on the observational data.

Since PIIGS has long been known to face a sovereign debt crisis, Public and Private Debt shall be included in the model. A severe sovereign debt crisis leads to austerity measures in government expenditure and a tax increase (Monastiriotis et al., 2013). Nonetheless, Elmendorf and Mankiw (1999) found differences in the direction of public debt over short and long periods. Contrarily, Baum et al. (2013) found positive effects of a low debt-to-GDP ratio during a short period, and that a higher ratio had negative effects in the long run. Aside from public debt, private debt also has a significant role in measuring economic growth. Vague (2014) found that in different locations and periods, the effect of private debt was different. High private debt stock leads to an expansionary period, yet when the demand is inadequate and unable to absorb the output, debt level then becomes a sign of contraction in the next period.

There are several prior studies about PIIGS countries. In one of them, Betyak (2012) revealed the determinant of economic stagnancy in PIIGS countries by doing panel regression analysis. In her research, she also distinguished the effect of these determinants for each country by separating the regression analysis. Distinctively, dummy variables would be utilized to see the fixed effect of every variable on each country under identical circumstances. The effect of literacy rates in the labour supply was distinguished to gain a deeper insight of the structural problem between employment and economic growth.

Through this research, the answer to the puzzling state PIIGS currently faces has been bothering for decades which is expected to be found. From that point, an appropriate proposal to promote economic growth in PIIGS could be derived. Furthermore, in a broader extent, some key points to promote Growth, which applies to a country or region in a similar state or with similar characteristics as PIIGS might be found. This is how meaningful contributions is constructed, not only for theoretical development but also for real-world applications regarding policy formulation.

MATERIALS AND METHODS

The panel dataset was based on annual numbers, collected from reliable sources (see Table 1). All the variables consisted of historical values. The values of consumption, public and private debt were lagged because it was expected that their effects on growth to be delayed. The research period was limited to the years 2001-2013 due to numerous missing values prior to 2001. As a result, 60 observations were given in total. Nevertheless, it covered the year's pre-, during, and post-2008 crisis, therefore allowing thorough analysis to be sufficiently generated.

Next, to estimate the contribution of each variable to economic growth, multiple linear regression analysis using dummy variables is employed. These are beneficial in making a clear distinction between the set of PIIGS countries that are qualitative (Pindyck & Rubinfeld, 1998).

Table 1
Variables description

Variables	Description	Source	Period
GDP growth (GROWTH)	GDP growth in year t (%)		
Foreign direct investment (FDI)	Foreign direct investment in year t as percentage of GDP (%)		
Inflation (INF)	Inflation in year t (%)		
Net export (NX)	Net export in year t as percentage of GDP (%)		
Domestics (DS)	Domestic savings in year t as percentage of GDP (%)		
Labour supply (LS)	Labour supply in year t as share of population (%)	World Bank	
Primary education (PRIM)	Labour force with primary education (% of total)		
Secondary education (SEC)	Labour force with secondary education (% of total)		2002-2013
Tertiary education (TER)	Labour force with tertiary education (% of total)		
Primary - Secondary education (PRIMSEC)	Combination of PRIM and SEC (% of total)		
Consumption (LCONS)	Consumption in year t-1 as percentage of GDP (%)		
Private debt (L.PrDt-1)	Private debt in year t-1 as percentage of GDP (%)	Eurostat	
Public debt (L.PuDt-1)	Public debt in year t-1 as percentage of GDP (%)	IMF	
Time trend (T)	Time trend variable, with the values starting from 1 to 12 with respect to the year	Assumption	
Dummy variable	Dummy variable for country i		

The dummy variables also clearly depict the difference between several models in one regression as the intercept of the model (Gujarati, 1970). Adding dummy variables in the regression will generate the parallel intercept and coefficient for all independent variables, and makes two or more datasets comparable (Kennedy, 2003). The time trend variable is added to see if the result is different. The results of this model help this research to illustrate the difference between PIIGS countries using Greece as a reference point and giving an equal change in the set of parameters. Using ordinary least

squares (OLS), the basic model specification becomes as follows:

$$GROWTH_t = \beta_1 + \beta_2 T + \beta_3 FDI_t + \beta_4 INF_t + \beta_5 NX_t + \beta_6 DS_t + \beta_7 LS_t + \beta_8 PRIM_t + \beta_9 SEC_t + \beta_{10} TER_t + \beta_{11} L.PrD_{t-1} + \beta_{12} L.PuD_{t-1} + \sum_{j=13}^{16} \beta_j Dummy_i + \varepsilon_t$$

Several regression assumption tests were conducted to ensure beta is BLUE. The Jarque-Bera statistics to check if the residual was normally distributed was exposed. The autocorrelation of the residuals was checked using Durbin-Watson statistics. There were no potential heteroscedasticity issues as Robust OLS Regression was utilized to mitigate the possibility. As an endogeneity test, the Hausman test was employed to check the consistency of the model. If the endogeneity problem existed, a variable was replaced from the model with an instrumental variable and run two-stage least square regression (2SLS). The results of the instrumental variable in the 2SLS regression were then tested through Anderson Canonical Correlation LM statistics as a test of under-identification. The Weak-identification test was conducted to examine the Cragg-Donald Wald F statistic in order to verify the power of instrumental variables.

RESULTS

Basic Model Specification

The first column in Table 2 shows the multiple linear regression analysis of the basic model. The results indicate that in total, the independent variables could explain 77.1% of the variation of GDP growth. Domestic savings was significant with a significance value of 1%, followed by net export at the level of five percent. The rest of the independent variables were not significant. The trend was also found to be insignificant, which indicated there were no exogenous trends on GDP growth over time that were unexplained by other independent variables. Regarding the dummy variables, Ireland and Italy were found as the only significant ones at the level of ten percent. These findings seem unable to provide strong evidence of unexplained effects related to the difference in time and countries.

Of all of the variables, domestic savings seems to have the greatest contribution to growth. Elevating the domestic savings proportion in GDP by 1% is expected to boost GDP growth by 1.234%. On the other hand, the negative coefficient of net export (-0.422) seems to contradict the literature. Another finding, which is found to be interesting and not very intuitive at first, was the negative effect of tertiary education, albeit the finding was not statistically significant. These findings are discussed in more detail below.

Robustness and Model Exploration

To ensure the effects observed are not

Table 2

Regression result

VARIABLES	(1) GROWTH	(2) GROWTH	(3) GROWTH	(4) GROWTH	(5) GROWTH	(6) GROWTH	(7) GROWTH	(8) GROWTH	(9) GROWTH
trend	0.111	0.0231			-0.0116				
	(0.230)	(0.243)			(0.245)				
FDI	-0.0128	-0.0167	-0.0400	0.0225	-0.0216	-0.0268	-0.0175	0.0264	0.0126
	(0.0482)	(0.0485)	(0.0594)	(0.0812)	(0.0475)	(0.0572)	(0.0723)	(0.0843)	(0.0874)
INF	-0.108	-0.103	-0.192	0.0523	-0.0710	-0.183	-0.419	0.0644	0.0734
	(0.228)	(0.230)	(0.264)	(0.316)	(0.240)	(0.253)	(0.279)	(0.318)	(0.329)
NX	-0.422**	-0.409**	-0.694***	-0.461***	-0.366*	-0.656***	-0.390*	-0.455***	-0.499***
	(0.185)	(0.187)	(0.136)	(0.0895)	(0.192)	(0.127)	(0.234)	(0.0919)	(0.0928)
DS	1.234***	1.211***	0.963***	0.592***	1.202***	0.961***	0.795***	0.589***	0.575***
	(0.173)	(0.177)	(0.154)	(0.0763)	(0.177)	(0.149)	(0.190)	(0.0772)	(0.0831)
LS	-0.329	-0.212	0.299***	-0.0650	-0.186	0.298***	0.675**	-0.0810	-0.0916
	(0.326)	(0.322)	(0.111)	(0.0692)	(0.322)	(0.111)	(0.302)	(0.0764)	(0.0721)
HC	-0.0615	-0.0698	-0.0807**	-0.0651**	-0.103	-0.0830**	-0.0194	-0.0670**	
	(0.396)	(0.398)	(0.0377)	(0.0302)	(0.410)	(0.0352)	(0.0689)	(0.0313)	
PRIM					-0.00178	0.00210	-0.0507	0.0336	
					(0.0376)	(0.0309)	(0.0745)	(0.0340)	
SEC					0.0527**	0.0553***	0.0608	0.0447*	
					(0.0209)	(0.0194)	(0.0519)	(0.0235)	
LPrD	0.00489	0.0101	-0.0167		0.0160	-0.0244**	-0.0847*		
	(0.0271)	(0.0282)	(0.00998)		(0.0293)	(0.0108)	(0.0453)		

Table 2 *(Continued)*

VARIABLES	(1) GROWTH	(2) GROWTH	(3) GROWTH	(4) GROWTH	(5) GROWTH	(6) GROWTH	(7) GROWTH	(8) GROWTH	(9) GROWTH
LPuD	0.0118	0.0203	0.0717***		0.0167	0.0772***	0.0816***		
	(0.0460)	(0.0465)	(0.0223)		(0.0456)	(0.0228)	(0.0213)		
D_IRL	-15.90*	-15.94*			-17.41*				
	(9.211)	(9.355)			(9.630)				
D_ITA	-8.169*	-7.767*			-8.334*				
	(4.233)	(4.189)			(4.455)				
D_PRT	0.000391	-1.346			-3.767				
	(4.679)	(4.798)			(5.369)				
D_ESP	-7.849	-7.753			-9.539				
	(5.571)	(5.659)			(5.890)				
PRIMSEC		0.0431*	0.0618***	0.0466*					
		(0.0238)	(0.0227)	(0.0242)					
Constant	-2.455	-12.29	-43.30***	-11.24***	-10.75	-40.22***	-48.48***	-9.768**	-7.546*
	(20.16)	(19.95)	(9.180)	(3.382)	(20.29)	(8.401)	(12.14)	(4.239)	(4.005)
Observations	60	60	60	60	60	60	60	60	60
R-squared	0.771	0.774	0.722	0.627	0.784	0.738	0.596	0.628	0.589
Adj. R-squared	0.7068524	0.7042753	0.6713865	0.5770865	0.7108634	0.6846185	0.5141166	0.56978064	0.55098661

Note: Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

merely due to misspecification in the model, some robustness checks was conducted. The overall primary findings are summarised in Table 2 above. Then, an additional variable called *PRIMSEC* was added to observe the effect of bundled primary and secondary education. The first things to be eliminated were trend and dummy due to its insignificant fixed effects. Then, dropping private and public debt was considered, because in the basic model, their effects seemed ambiguous. Randveer et al. (2011) and Panizza and Presbitero (2012) provided more support to omit the two debt variables.

In these new specifications, it was found that net export and domestic savings consistently had negative and positive significant effects on growth, respectively. The effect of net export got stronger after variable reductions, as captured in the third and fourth specifications. There was also a negative effect of tertiary education, which seemed unintuitive unless it could be found to be statistically significant at the level of five percent. However, the combined effect of primary and secondary education was found to have consistent positive significance. The magnitude of the effect in the third specification was the highest, in which labour supply's coefficient was also reported as having positive significance.

From this, it is sensible that the third specification seems to be superior in terms of exposing the effect of each variable. It was also found that, whereas the first three specifications had nearly stable explanatory power, the fourth one seemed to have significant shrink of around ten percent in both its R^2 and adjusted R^2. This fact indicates that debt must have a significant effect on growth of PIIGS countries, despite the insignificant coefficients initially observed. In fact, in the third specification, public debt was found to be statistically significant at the level of one percent. This makes more sense for the PIIGS case, as they were dealing with a sovereign debt crisis.

The model specifications was further explored by separating the effect of primary and secondary education in similar steps and procedures. In general, the observed findings were the same, except that now private debt negatively affected growth. Secondary education was consistently found to positively affect growth significantly, whereas primary education did not seem to have a statistically significant effect. Lastly, another specification was added, by omitting trend, dummy variables, and all measures of debt and education. Here, the findings are comparable to those in the basic model specification, but with significantly lower explanatory power.

From the above descriptions, the specification six is picked to be the best model in further analysis. A set of tests is conducted to ensure this model meets the requirement for several assumptions, as summarised in Table 3.

Based on results of the assumption tests, it can be inferred that the residuals are normally distributed, and there is not any bold conclusion that can be achieved for the autocorrelation in error. On the other hand, this model fails to reject the null hypothesis of the inconsistency of the model and reveals the endogeneity problem in this model.

This paper replaces an independent variable with an instrumental variable to solve the endogeneity problem. One variable that is relevant to be replaced is LPrD, due

Table 3
Assumption tests

Assumption test	Statistics	Critical value	P-Value	Alternative hypothesis
Normality of Residuals (Jarque-Bera Test)	4.942	5.991	-	Residuals are not normally distributed
Autocorrelation in Residuals (Durbin-Watson test)	1.805	dU = 1.865 dL = 1.037	-	The existence of autocorrelation in residuals
Endogeneity test (Hausman Test)	4.33	-	0.888	Model is consistent and endogeneity problem

to its insignificance. Reinhart and Rogoff (2010) revealed that in many countries, including Eurozone countries, Consumption (LCONS) was strongly correlated with private debt. Furthermore, this research also found that during the observational period, as a single independent variable, LCONS was significant in explaining the variation of LPrD. Therefore, this research used LCONS as the instrumental variable to replace LPrD.

By conducting 2SLS regression with the specifications above, the endogeneity problem has been diminished. Greene (2002) proposed Durbin-Wu-Hausman to test the exogeneity of independent variables. The Durbin-Wu-Hausman test X^2 gives =3.56328 and Prob > X^2 = 0.05907, which fails to reject the null hypothesis that the result of 2SLS regression is exogenous. Nonetheless, several substantial changes are found in the regression results. Both percentages of labour with tertiary and secondary levels of education are no longer significant in explaining the growth. There are also lower R^2 and significance levels of net export, labour supply, and private debt. Consecutively, with Anderson Canonical Correlation LM Statistic=5.408 and Prob > X^2 = 0.02, the model matrix is full rank, and the under-identification hypothesis of this model can be rejected. Furthermore, the Weak Identification test gives the Cragg-Donald Wald F-statistic the value of 4.854 for LCONS as the Instrumental Variable. This is lower than the critical value of 5.53 at the 25 percent threshold. This indicates that LCONS is a strong instrument to estimate LPrD in the model, and therefore, the endogeneity problem is resolved.

Equation

The basic model used to explain the GDP growth of PIIGS countries in this paper is:

After several model explorations and replacing LPrD with LCONS as the instrumental variable to solve the endogeneity issue, the final model can be specified as follows:

$$GROWTH_t = -2.455 + 0.111 * T - 0.0128 * FDI_t - 0.108 * INF_t - 0.422 * NX_t$$
$$(20.16) \quad (0.230) \quad (0.0482) \quad (0.228) \quad (0.185)$$
$$+1.234 * DS_t - 0.329 * LS_t - 0.0615 * TER_t + 0.00489 * L.PrD_{t-1}$$
$$(0.173) \quad (0.326) \quad (0.396) \quad (0.0271)$$
$$+0.0118 * L.PuD_{t-1} - 15.90 * Dummy\ Ireland_t - 8.169 * Dummy\ Italy_t$$
$$(0.0460) \quad (9.211) \quad (4.233)$$
$$-0.000391 * Dummy\ for\ Portugal_t - 7.849 * Dummy\ for\ Spain_t + \varepsilon_t$$
$$(4.679) \quad (5.571)$$

$$GROWTH_t = -48.48 - 0.0175 * FDI_t - 0.419 * INF_t - 0.390 * NX_t + 0.795 * DS_t$$
$$(12.14) \quad (0.0723) \quad (0.279) \quad (0.234) \quad (0.19)$$
$$+ 0.675 * LS_t - 0.0194 * TER_t - 0.0507 * PRIM_t + 0.0608 * SEC_t$$
$$(0.302) \quad (0.0689) \quad (0.0745) \quad (0.0519)$$
$$- 0.0847 * LPrD_t + 0.0816 * LPuD_t + \varepsilon_t$$
$$(0.0453) \quad (0.0213)$$

DISCUSSIONS

From the basic model, it was found that, surprisingly, Greece is estimated to have the highest GDP growth among other PIIGS countries on average, aside from Portugal, given the same level of other explanatory variables. It contradicts the fact that between 2002 and 2013, Greece has the lowest average growth among others, as summarised in Table 4.

Conversely, Ireland, which has the highest mean GDP growth, has the lowest level of the country variable, meaning that Ireland should have the lowest growth if it has the same value of other variables. This result indicates that the impacts of explanatory variables are enormously high, to the extent that they could switch Greece from a country with the lowest to the highest growth, and Ireland in the opposite direction.

Recall that PIIGS countries are known for their sluggish economic growth. A significant lagged public debt reveals that during the observational period, the government obtained money to give a stimulus to its economy. As shown in Figure 1, the starting point of this is related to the enormous increase in private debt before the financial crisis in 2008. In around 2009, after the financial crisis, in order to prevent an even more severe effect on the entire economy, governments intervened in some ways. Government intervention was led by the fiscal stimulus from the European central bank, which allows the PIIGS countries to issue long-term bonds at a lower rate. The purpose of this is to improve the banks' liquidity at a lower rate to help them expand customer credit.

Such a stimulus is like a double-edged knife. Figure 2 reveals that the lower interest rate meets its objective to keep consumption at a steady level of roughly 75% of GDP. Nonetheless, an increase of unemployment at roughly 10% during the financial crisis proved that the stimulus failed to boost productive investment. It is arguable that lower interest rates might be used to refinance old debt or invest overseas

Table 4

Mean value of variables

Variables	Greece	Ireland	Italy	Portugal	Spain
GDP growth	-0.457	2.038	-0.200	-0.117	1.097
Foreign direct investment	0.783	15.182	0.941	3.911	3.140
Inflation	2.807	2.082	2.159	2.240	2.621
Net export	-8.835	13.936	-0.105	-6.368	-2.347
Domestic savings	12.184	37.836	20.380	15.145	23.913
Labour supply	53.258	61.300	48.792	61.800	57.567
Primary education	32.046	24.354	38.685	63.931	44.915
Secondary education	42.538	38.531	44.862	16.162	22.723
Tertiary education	25.317	34.808	15.767	14.900	32.317
Primary + Secondary education	74.585	62.885	83.546	80.092	67.638
Lagged consumption	87.590	61.998	79.501	84.641	76.111
Lagged private debt	97.025	202.242	104.492	182.008	166.075
Lagged public debt	120.368	51.249	106.802	74.530	51.840

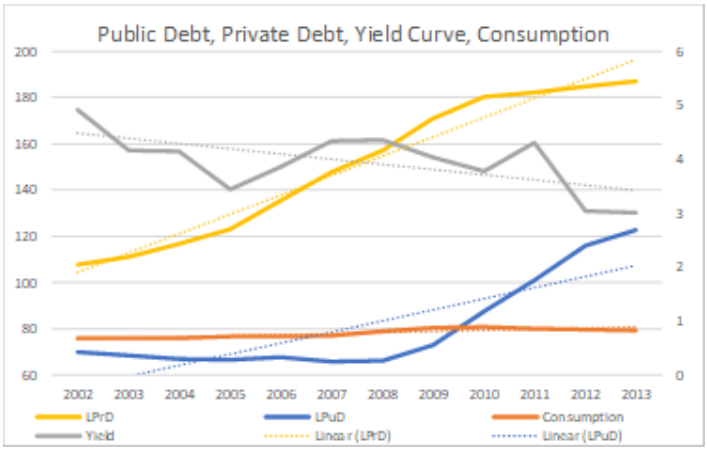

Figure 1. Public debt, private debt, yield curve, and consumption

instead. In any case, this failure results in lower domestic output and economic growth in general. In the end, as observed in the regression output, lower domestic savings and higher private debt could derive lower economic growth.

Simultaneously, the low level of private investment is attributed to the lower output of the economy. Under steady consumption, shrinking domestic output could potentially fail to meet the demand. As described by Figure 3, import continues to rise and

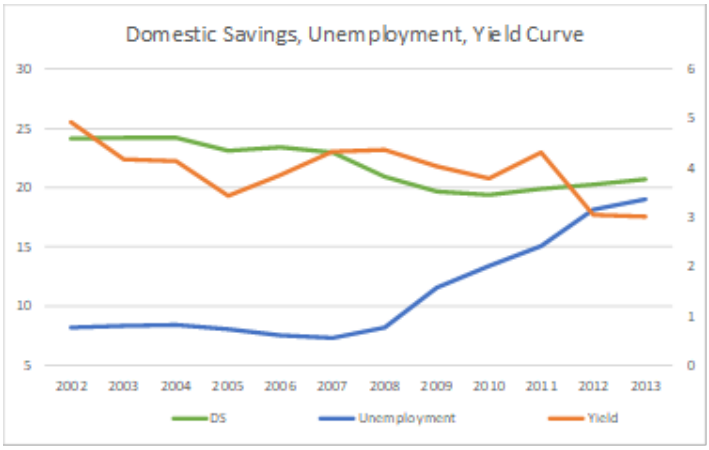

Figure 2. Domestic savings, unemployment and yield curve

exceeds export to some extent. This leads to the negative net export. The negative coefficient does not necessarily mean that net export has a negative relationship with economic growth. Instead, the observed negative net export, during nearly all years of the study period, collides with the negative beta coefficients, resulting in a net positive effect of net export on growth. In the end, it can be concluded that the nature of the net relationship of net export and growth is consistent with many kinds of literature, in which the more export exceeds import, the greater the growth.

Lastly, the effect of labour is discussed. It is found that the labour supply has significantly positive effects. Nonetheless, this positive effect does not always hold if the quality of labours is being investigated, represented by their highest level of education. Significant negative effects are revealed when primary and secondary education are included, and other variables are omitted. Furthermore, it seems surprisingly consistent across all model specifications, whereas intuitively, a high level of education is expected to have a positive effect on growth. On another hand, a significant and positive effect of secondary education is identified, whereas primary education is not significant. These findings are consistent with results about heterogeneity of labour supply by Kydland (1984). Though this set of findings on educational level disappeared when the endogeneity problem is solved, this issue remains interesting to be discussed.

As introduced by Liang et al. (2013), "over-education" occurs when the growth rate of the educated labour supply exceeds the economy itself. The result is consistent with Sacerdoti et al. (1998), who found that a more favourable environment was necessary to apply higher cognitive skills. The authors attempt to adopt this idea to the PIIGS case by assessing the minimum wage level. The minimum wage levels in PIIGS countries are relatively low in general (except for Ireland) compared to other European countries as shown in Figure 4.

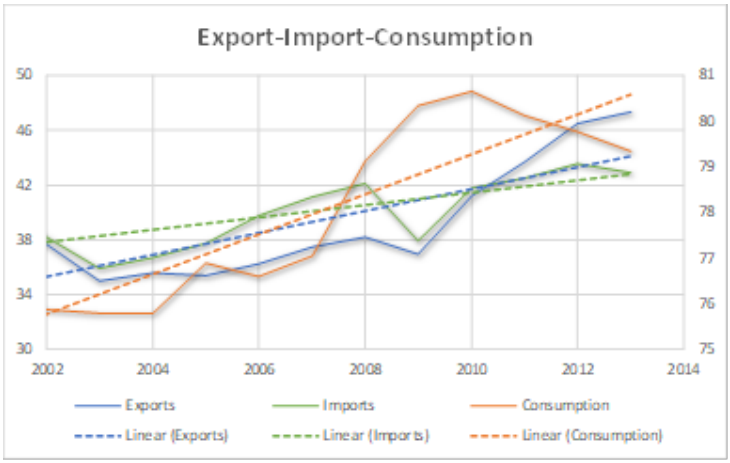

Figure 3. Export, import and consumption

This has two consecutive effects: the companies or employers will not be willing to or be able to afford to offer high pay for highly-educated people; the highly-educated people will, in general, not be satisfied with small incentives, and will move to another country with better offers. In other words, even if there are originally many high-level human capitals in PIIGS, if the market is not yet ready to accommodate them, it will be pointless. In the end, human capital will look as if it does not have a positive impact on growth.

CONCLUSIONS

There are several key findings in this research. The analysis is started by utilizing dummy variables, but later on, there is

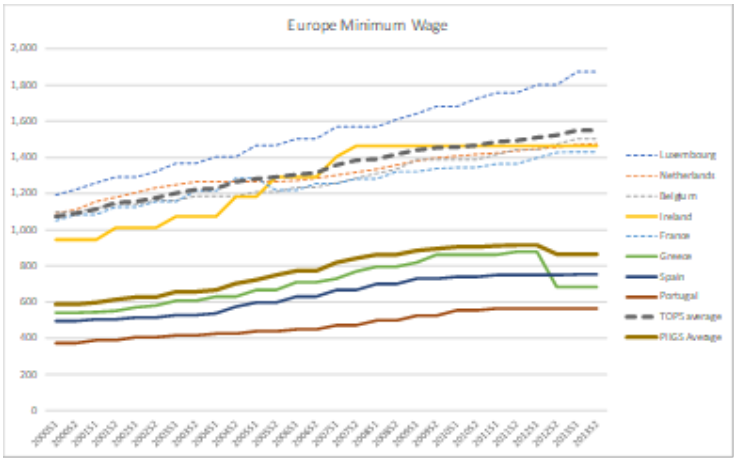

Figure 4. Europe monthly minimum wage

no significant differences among PIIGS countries within the model is found. It is also found that there are no significant differences between each time period. In the end, there are five statistically proven significant variables which are domestic savings, net export, labour supply, lagged private debt, and lagged public debt. Lagged public debt and domestic savings are found to be statistically significant at the level of 99%, labour supply at the level of 95%, and lagged private debt and net export at the level of 90%. An interesting result on negative coefficient of tertiary education, which is believed to come from the failure of a social structure that can absorb high-level human capital. These results have some important policy implications.

Governments may always start by encouraging higher productive investment to escalate economic growth. Nonetheless, the data shows that injecting money into the financial market with lower interest rates is not sufficient to promote productive investment due to a relatively steady consumption. Therefore, governments may need to give more stimulus to consumption. If this succeeds, domestic output will be expected to increase accordingly. This could be followed by a decline on import, as demand now can be fulfilled domestically. As a result, net export will turn positive, and at some point will begin to elevate economic growth again. If this continues to hold and the economy is getting much better, indicated by higher inflation, governments could then start to think about increasing the yield to absorb excess money supply on the market. This is expected to increase domestic savings, which will result in higher economic growth as the bank redistributes the money to the productive sectors. The boosted domestic output from this continuous cycle will help reduce unemployment and increase the absorption of high-level human capital from sectors with higher productivity.

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The Importance of PMO Practices in Strategic Initiative Implementation: An Empirical Study of Indonesian Banks

Mohammad Ichsan* and Mohammad Hamsal

Bina Nusantara University, Kebon Jeruk Raya No. 27, Kebon Jeruk, Jakarta Barat, 11530, Jakarta, Indonesia

ABSTRACT

In order to be competitive in the market, business organizations are forced to formulate strategy and implement it in the form of strategic initiatives in project management. This study examines the crucial role of project management office (PMO) practices in strategic initiative implementation, measured by the performance of banks taken from year 2014 to 2016. Empirical research was conducted through a survey, by using questionnaires to assess the contribution of PMO practices in managing strategic initiatives in Indonesian banks. A set of data from 74 top executives, representing 115 banks was collected. The variables for the strategic initiative implementation are project portfolio management capabilities, project management office practices, and performance of the banks reflected by their return on assets (ROA) analyzed and compared through Partial Least Square-Structural Equation Model method using SmartPLS 3.0 software. The results show that PMO practices have positively influenced the project portfolio management capabilities. Subsequently, the strategic initiative implementation which is influenced by project portfolio management capabilities has produced significant influence on the ROA.

Keywords: Banks, initiatives, portfolio, project, strategic

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E-mail addresses:
d3919@binus.ac.id (Mohammad Ichsan)
mhamsal@binus.edu (Mohammad Hamsal)
*Corresponding author

INTRODUCTION

In order to survive in the dynamic business environment where changes are inevitable and sometimes hard to control, companies or firms must take tough and timely decisions

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in response to them (Aubry et al., 2009; Aubry et al., 2007; Hamel as cited in Patah et al., 2015) and to sustain in the business (Forrester, 2013). Strategy implementation has always been crucial in objectifying strategy formulation. As indicated by the Economist Intelligence Unit (2013) in a survey report from 2011 to 2013, on average only 56% of strategic initiatives managed in the form of projects were successfully implemented (Project Management Institute, 2013). This shows that some firms face challenges to implement their strategy. Meanwhile, the return on assets (ROA) of the banks which is used to measure their performance (Boppel, 2013) show a declining trend between year 2014 and 2017 (Indonesia Financial Services Authority, 2017) as has been shown as red dashed line in Figure 1.

This phenomenon can be caused by external factors such as the composite stock exchange index, the industry production index and the federal bank rate (Aviliani et al., 2015). The banks may improve the deterioration in their performance by implementing strategic initiatives formulated prior to their execution. These initiatives may be a development of a new products, improvement on current operational activities, enhancement of an incumbent products, or any other initiatives that may help business recovery. The banks may formulate, select and implement initiatives in the form of projects, however, there are also many initiatives in a certain time span must always be aligned to the objective of improving the firm's performance of the banks that is the ROA. Managing such relatively parallel

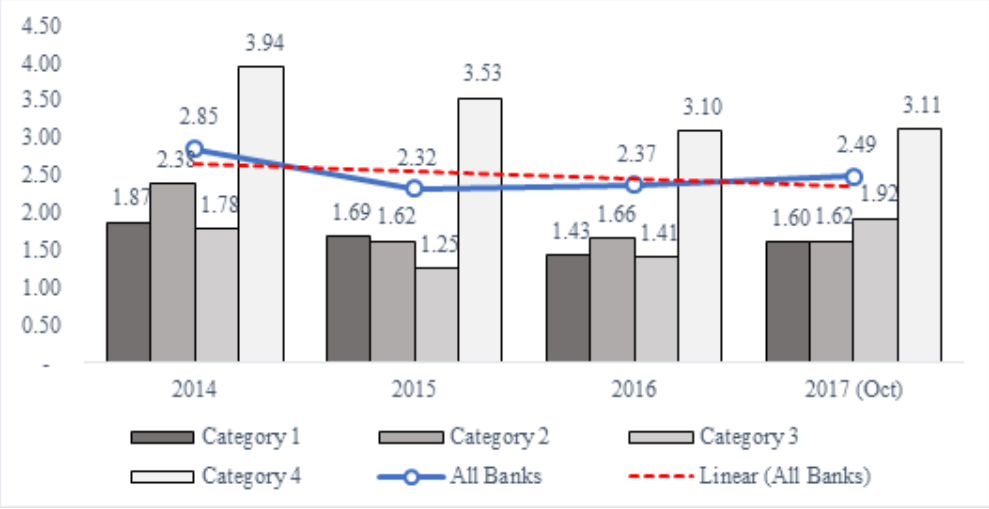

Figure 1. ROA for four categories of commercial bank in percent
(Source: Indonesia Financial Services Authority, 2017)

projects may lead to problems if they are not being managed effectively. Some business organizations have been facing challenges in simultaneously managing their strategic initiatives in the form of projects, and hence they need a structured management approach using project portfolio management, in which the organization can select, prioritize, balance and even reconfigure the projects to ensure they are always aligned to the objectives of the initiatives (Dietrich & Lehtonen, 2005; Killen et al., 2008a; Martinsuo & Lehtonen, 2007; Project Management Institute, 2016).

To implement strategic initiatives in the form of projects, some organizations have established a new organizational entity, the most common name for which is the Project Management Office or PMO (Aubry et al., 2009). However, some organizations have also experienced a negative effect of having a PMO, with regard to the challenges that have been faced in managing their projects (Aubry et al., 2007; Hobbs et al., 2008; Singh et al., 2009; Too & Waiver, 2014). Therefore, it is quite obvious for an organization to appreciate the importance of having a PMO, especially in the context of a dynamic industry such as banks, as their business characteristics are short term in nature and very sensitive to global financial reforms, despite its attraction to be further explored and exploited (Indonesia Financial Services Authority, 2015). Unfortunately, there appears to be extremely low evidence in the form empirical studies of whether Indonesian banks apply PMO practices. If they do, it is also unclear whether they contribute to supporting the project portfolio management capabilities in managing the number of initiatives, and whether the banks select, prioritize, balance and reconfigure the initiatives to keep them aligned with the strategic objective of improving ROA. The objective of this study is to establish whether PMO practices are applied in Indonesian banks and to evaluate how the PMO contributes to project portfolio management capabilities in managing strategic initiatives so that the ROA of the banks can be improved.

The remainder of the paper is structured as follows: section 2 reviews the significant literature related to the research topic, in which the hypothesis and research model are also proposed; section 3 explains the methodology used for this study; section 4 and 5 analyse and discusses the data and research results; and finally, section 6 presents the conclusion.

Literature Review

The whole concept of this theoretical framework is the dynamic capabilities. This theory was developed to fill the gap of insufficiency in explaining the firm's competitive advantage in changing the environment as has been proposed in theory of Resource-Based View (Barney, 1991) as explained by Barreto (2009). In a dynamic environment, it is very important for an organization to integrate, build

and reconfigure internal and external competencies to tackle the related issues (Teece et al., 1997). In some organizations, they translate these into a strategy which requires an implementation.

According to Boppel (2013), strategic initiatives are understood as a temporary undertaking to renew or expand the capabilities of firms. As the character of strategic initiatives is aligned with the character of projects (Project Management Institute, 2013), most organizations manage these initiatives as projects. In some organizations, the implementation of strategic initiatives is not easy, as they lack the execution know how, and the ability to tackle constraints such as politics and bureaucracy in the organizations (Hrebiniak, 2006; Neilson as cited in Smith, 2011; Saunders et al., 2008). The study by Boppel (2013) showed that an implementation of a right strategy might lead to a better ROA performance in financial institutions. Therefore it can be understood that the right strategic initiative implementation may positively influence the ROA of banks. In relation to this notion, the following hypothesis is proposed:

H1: Strategic initiative implementation (SII) positively influences the firm's performance of banks (FP).

The next issue is to select the right strategic initiatives prior to their implementation; it can also be highlighted that there is a possibility that banks may implement multiple strategic initiatives. This may lead to challenges in managing multiple strategic initiatives or projects to achieve strategic objectives. In extending the capabilities of the organization to manage the implementation of strategic initiatives, the application of dynamic capabilities in the form of project portfolio management can be translated to several factors, such as business objectives, selection, prioritization, dynamic balancing and reconfiguration of projects (Daniel et al., 2014; Martinsuo & Lehtonen, 2007; Project Management Institute, 2013), implying enhancement of the theory of dynamic capabilities (Killen & Hunt, 2010; Killen, 2008; Killen et al., 2008a; Killen et al., 2008b). Therefore, the approach to apply the capabilities of project portfolio management should be considered in managing the implementation of multiple strategic initiatives effectively. Such consideration leads to the proposal of the following hypothesis:

H2: Project portfolio management capabilities positively influence strategic initiative implementation (SII).

In order to manage such capabilities, especially in multi-projects environment, some organizations may apply project management practices, with or without the presence of a formal PMO department (Aubry et al., 2009; Dai & Wells, 2004; Hobbs et al., 2008; Project Management Institute, 2013). The PMO practices will help the organizations in providing project management standards and methods, developing lessons learned, administrative

support, staffing assistance, providing support in developing project management resources, as well as strategic management.

Depending on the organization's needs, different types of PMO can be established (Project Management Institute, 2013). The PMO practices may also be extended to supporting the project portfolio management capabilities in banks in order to align the strategic initiative implementation with the formulated strategic objectives. There is a lack of evidence in previous studies of whether PMO practices can influence the performance of the banks, so it is interesting to observe its direct influence on ROA. The following hypotheses are therefore proposed:

H3: Project management office practices (PMOP) positively influence project portfolio management (PPM) capabilities.

H4: Project management office practices (PMOP) positively influence firm's performance (FP).

The other important factor that needs to be taken into consideration is measurement of the impact of the managing of strategic initiative implementation of a firm and in this case it is the banks in Indonesia. Firm's performance can be measured from the perspective of finance, operations and effectiveness (Nahm et al., 2004; Tseng 2010; Venkatraman & Ramanujam, 1986). In the context of banks, performance can be measured using CAMEL components (Boubakri et al., 2017; Nurazi & Evans, 2015). For this study, the firm's performance of the banks is used with reference to CAMEL components such as capital growth, credit growth, net interest margin growth, third-party fund growth and total asset growth. Boppel (2013) used ROA to measure firm's performance because it was best way to use to indicate earnings efficiency (McNamara et al., 2003). The ROA is also used because it shows direct effect of strategic decisions on the asset mix of financial services firms (Reger et al., 1992) and it is the least sensitive performance measure (Barkema & Schijven, 2008). For this study, ROA is used to measure the firm's performance of the banks.

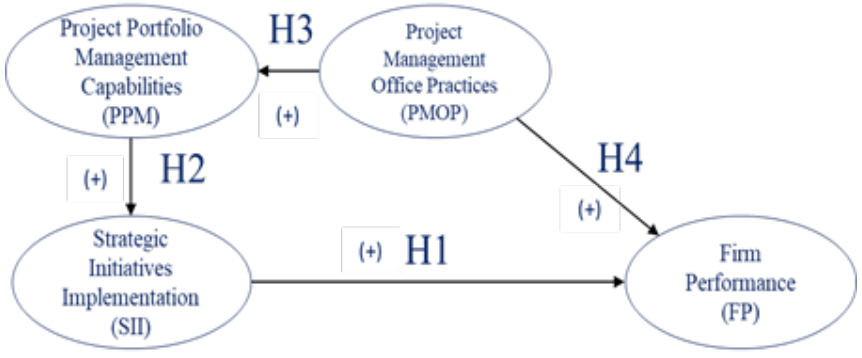

Figure 2. Research model

Research Model. The literature review has led to the establishment of the research variables and the structural model, as shown in Figure 2, where the strategic initiative implementation (SII), project portfolio management capabilities (PPM) and project management office practices (PMOP) are exogenous variables, while the firm's performance of the banks is an endogenous variable.

The literature review has also led to the proposed hypothesis (H1) that strategic initiative implementation (SII) can influence the firm's performance of banks, measured by the indicator ROA. Furthermore, as the selection, prioritization, balancing and reconfiguration of the multiple strategic initiatives are made through PPM capabilities, this leads to the hypothesis that strategic initiative implementation will be more effective when using such capabilities (H2). The other hypotheses also propose that applying PMOP will result in more effective PPM capabilities. Finally, the study will also observe the direct influence of PMOP on the firm's performance of banks. The main purpose of the study is to establish whether project management office practices will lead to better management of implementing multiple strategic initiatives in the form of projects, resulting in better ROA as an indicator of the firm's performance of banks.

MATERIALS AND METHODS

The study is designed to be empirical and quantitative by using a positivist paradigm perspective. The unit of analysis is a bank as a company, and the objects of the analysis are executives (C-Suites) or top management (Vice Presidents, General Managers, Heads or equivalent). The sampling frame is the list of banks in Indonesia based on Infobank (Infobank, 2017). When the study was conducted, the total number of banks was 115. Considering that the population was known, and the number of banks were relatively small, a census approach was considered advisable. The questionnaires were developed with statements mostly referring to ones used in previous research, as they had been empirically tested. The measurement of each item used a 6 point Likert Scale (from 1 ="strongly disagree" to 6 = "strongly agree"), with the intention to force the respondents to commit to a certain position. A pilot test was conducted to check item validity and reliability.

The data were collected in a survey using a structured questionnaire. The questionnaires were sent through emails and online survey tools. Very little follow up was required for clarification, with some friendly reminders. As the purpose of the study was to explore how PMO practices affect the other latent variables in the integrated model, structural equation modeling was proposed. Furthermore, as the number of banks was relatively small, the analysis used a partial least square structural equation model (PLS-SEM). While the other variables were measured using primary data, the firm's performance of the banks was based on secondary data. The data were retrieved from a special edition of the magazine Infobank (2015, 2016, 2017), with the aim of establishing

the growth in the firm's performance of the banks from 2013 to 2015. A geometric mean was proposed to measure this growth within the period in question. As the primary data were ordinal and the secondary data interval data, conversion from ordinal to interval data was undertaken, using the Method of Successive Interval (Edwards, 1952). Analysis of the PLS-SEM was made with SmartPLS3.0 software.

RESULTS

The survey was conducted from October 2016 to January 2017. From the total of 115 banks, 74 respondents representing 74 banks had returned the completed questionnaire. To test the hypotheses, $\alpha = 0.06$ was calculated by using Cochran formula due to the small number of samples, as well as considering the effect of sample ß size and statistical power, $p < 0.1$ (Hair et al., 2017). From the total of 74 respondents, majority of them which was 40 respondents represented category[1] 2 banks (54%); 11 respondents represented category 1 banks (15%); 16 respondents represented category 3 banks (22%); and 7 respondents represented category 4 banks (9%). The percentage of respondents who had positions as a vice president or similar was 38% (28), general manager or similar was 34% (25); or C-Suites was 24% (18) and the remainder held other positions (similar to the three designated position in the questionnaire). 41 respondents had a Bachelor's degree or similar (56%), 32 had a Master's degree or similar (43%) and the remaining one respondent had a Diploma (1%). Forty-four (44) banks (59%) had a formal PMO entity, while the other 30 banks (41%) did not have one. From Table 1, it can be seen that the higher the assets of the bank, the greater the presence of the PMO in that bank.

The proposed research model was analyzed using software SmartPLS3.0. The assessment of the model to achieve several criteria was performed by using PLS Algorithm and bootstrapping with of 2,000 sub samples (Hair et al., 2017) as shown in Table 2.

All loading factors (λ) have values of more than 0.70, hence the indicator reliability is higher than 0.5. This means that it has passed the criteria for model assessment. Furthermore, the SRMR value is 0.08, which is equal to the threshold of 0.08, so this indicates that the model is considered fit. The results are summarized in Table 3.

To achieve the optimum fitness of the model, however, some indicators were deleted, and one construct was merged using the model assessment process (Hair et al., 2017). The firm's performance (FP) of the banks now had only two indicators that is the credit growth and total asset growth. Apart that the SRMR value is 0.08 indicating a good fit of a model, still the calculated RMS theta was only 0.180 which is less than the recommended value 0.120. This might be

1 According to the Regulation of the Federal Bank of Indonesia (Regulation No. 14/26/PBI/2012), general banks can be categorized as four types, based on assets. BUKU 1 banks have assets of less than IDR 1 trillion; BUKU 2 banks have assets of between IDR 1 trillion and IDR 5 trillion, BUKU 3 banks have assets of between IDR 5 trillion and IDR 30 trillion; and BUKU 4 banks have assets of more than IDR 30 trillion.

caused by the small quantity of samples. The finalized model is shown in Figure 3. The path coefficient and p-value (in brackets) were calculated for further analysis.

Table 1

PMO presence in the banks

No	Bank category	No PMO in the organization	% of total respondents	PMO in the organization	% of total respondents	Total respondents
1	BUKU 1	7	63.64%	4	36.36%	11
2	BUKU 2	21	52.50%	19	47.50%	40
3	BUKU 3	2	12.50%	14	87.50%	16
4	BUKU 4	0	0.00%	7	100.00%	7
	TOTAL	30	40.54%	44	59.46%	74

Table 2

Construct validity and reliability

Variables/Dimensions	Cronbach's Alpha	rho_A	Composite reliability	Average variance extracted
Bus obj.drives projects	0.867	0.875	0.910	0.718
Cancel and reconfigure project	0.869	0.875	0.938	0.884
Dyn.balance risk and rewards	0.848	0.849	0.908	0.768
Firm's performance (FP)	1.000	1.000	1.000	1.000
HR/staff assistance	0.946	0.950	0.965	0.902
Historical archive	0.909	0.915	0.942	0.845
Multiple dyn. prioritization	0.911	0.912	0.944	0.849
PM adm support	0.824	0.837	0.896	0.743
PM mentoring and consulting	0.932	0.936	0.947	0.749
PMO practices (PMOP)	1.000	1.000	1.000	1.000
Proj.portfolio mgmt cap. (PPM)	1.000	1.000	1.000	1.000
Standard and method	0.887	0.891	0.930	0.815
Strat.initiative implementation (SII)	0.875	0.886	0.904	0.576

Table 3

Model fit

	Saturated model	Estimated model
SRMR	0.08	0.11
d_ULS	6.848	10.524
d_G	44.465	50.281
Chi-Square	3,220.753	3,452.796
NFI	0.460	0.421

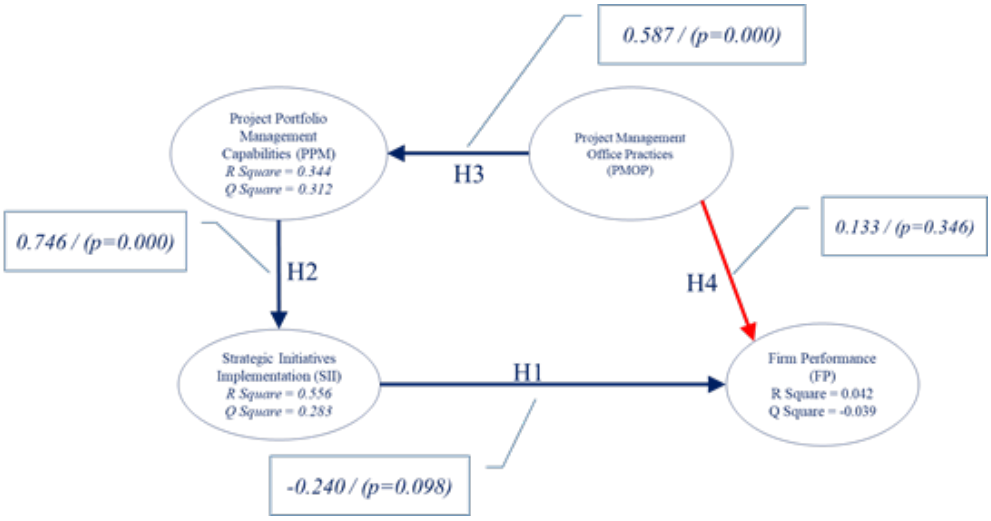

Figure 3. Path coefficient and p-value using bootstrapping with 2,000 sub-samples

After the analysis, using the calculated $\alpha = 0.10$ in order to maintain fewer samples and less power, the testing results of the hypotheses can be found in Table 4. If p-value < 0.10, then there is a significant relationship between the constructs.

Table 4

Hypothesis testing results

No	Hypothesis	p-value	Result
1	H1	0.098	Accepted
2	H2	0.000	Accepted
3	H3	0.000	Accepted
4	H4	0.346	Rejected

DISCUSSIONS

The analysis results show that there is a significant relationship between strategic initiative implementation (SII) and the firm's performance (FP) of the banks measured in ROA (p-value = 0.098) at $p < 0.1$. The loading factor $\beta_1 = -0.240$ indicates the reaction of the banks when implementing strategic initiatives to improve declining ROA between 2015 and 2017. The implementations are influenced by the project portfolio management (PPM) capabilities that select, balance, prioritize and reconfigure the strategic initiatives in the form of projects. Such capabilities significantly (p-value = 0.000 at $p < 0.1$) affect the implementation, as is seen from the analysis results of both relationships $\beta_2 = 0.746$, which is in line with Hrebiniak (2006), Neilson as cited in Smith (2011) and Saunders et al. (2008). Nevertheless, knowing that there is no significance between PPM and FP, it can be understood that even though PPM is conducted, without any role or practices managing the capabilities, there will be no significant impact of PPM on FP, which is in line with Daniel et al. (2014). and Martinsuo and Lehtonen (2007).

The PMOP has a significant influence on PPM (p-value = 0.000 at $p < 0.1$) with a loading factor of $\beta_3 = 0.587$. This shows the role of the project management office in supporting the PPM capabilities by applying formal and proper PMO practices in the banks, which is in line with Aubry et al. (2009), Dai and Wells (2004) and Hobbs et al. (2008) Project Management Institute (2013). The analysis results provide evidence that there is no significant (p-value = 0.346 at $p < 0.1$) direct impact of project management practices (PMOP) on the firm performances of the banks using ROA.

CONCLUSIONS

This research proves that the presence of a formal project management office (PMO) will contribute not only to better management of multiple strategic initiatives in the form of projects, but will also align them with the strategic objectives by selecting appropriate projects, prioritizing them, balancing the capabilities in implementing them, as well as configuring them based on the needs of the organization. This is derived by understanding the significant influence of PMO practices on the project portfolio management capabilities. This research has also shown that implementation of the right strategic initiatives using project portfolio management capabilities supported by an effective PMO practices have influenced the ROA positively. This provides evidence that by having a PMO practices without building up project portfolio capabilities simultaneously will not influence the ROA. The above findings have enhanced the current theories in the context of banking industries, especially in Indonesia. As only 41% of the respondents (30 banks) have a formal PMO, it is suggested that to other banks which still do not have a formal PMO to set it up. Further, it must be practiced to the project portfolio management capabilities which will influence firm's performance of the banks, reflected in their ROA. The firm's performance will be greater if this practice

is supported by the senior executive. Finally, further research in the form of case study is strongly recommended to fill the gaps in this study such as the measurement of the impact of strategic initiative implementation from its start and to the business performance.

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Sukuk Rating Prediction: The Case of Corporate *Sukuk* in Indonesia

Nabila Ismail and Tika Arundina*

Islamic Economics and Islamic Business Program, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

The objective of this research is to discover how to set a rating for *sukuk* and to assess the factors that significantly influence *sukuk* ratings in Indonesia. The study contributes in reducing asymmetric information between investors and issuers by providing information on variables that affect *sukuk* rating. Not all securities are being rated by the agencies, the suggested model, therefore could be used as one of references to compare between the non- rated securities and the rated ones in order to guide investor in their buying or selling strategy. The study applies multinomial logistic regression in order to predict the *sukuk* ratings made by PT. Pefindo using several independent variables such as total assets, long-term leverage ratio, current ratio, interest coverage ratio, Return on Assets (ROA), guarantees and *sukuk* structure. The result shows that this model could predict 90.1% of *sukuk* rating issuance by PT. Pefindo.

Keywords: Credit rating, *sukuk*, *sukuk* rating

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E-mail addresses:
nabilaismail.4@gmail.com (Nabila ismail)
tikarundina@ui.ac.id (Tika Arundina)
*Corresponding author

INTRODUCTION

Sharia-compliant financial instruments are based on sharia principles of fair agreement as well as the prohibition of *usury, maysir and gharar*. One of the most widely published instruments is *sukuk*. *Sukuk* refers to long-term securities based on sharia principles and they are issued by issuers to investors requiring issuers to pay income to *sukuk* holders in the form of profit/margin/fee and to pay back the *sukuk* funds when they have matured (Fatwa Dewan Syariah

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Nasional, 2002). In Indonesia, *sukuk* has strong legitimacy. This is evidenced by the issuance of Bapepam, OJK and the fatwa regulations of the National Sharia Council.

The presence of corporate *sukuk* can be an alternative for investors to diversify their investments and funding alternatives for issuers. Based on data from the Financial Services Authority (OJK) as of December 2016, in Indonesia there are 53 lists of outstanding corporate *sukuk* with a value of Rp 11.87 trillion. This growth raises the need for supporting information such as *sukuk* rating in order to reduce information asymmetry between investors and issuers, and to support the growth of corporate *sukuk* in Indonesia.

Associated with the *sukuk* offerings made by a company, the issued *sukuk* must have a rating appraised by the official rating agency. In this way, the *sukuk* rating becomes important for both the issuer and the investor. For issuers, obtaining *sukuk* ratings enables them to gain the trust of business partners or to sell securities to investors with a certain rating preference. For investors, the *sukuk* rating is a benchmark to consider when making investment decisions as it allows them to estimate the project's security and the issuer's ability to provide returns.

The *sukuk* rating is analyzed based on the performance of *sukuk* on the basis of independent assumptions. The newly published financial statements or the emergence of important events pertaining to the company, as well as being material and having an impact on the ability to repay debt obligations, may change the situation in terms of the *sukuk* rating results. *Sukuk* which has a high rating is characterized by a company's healthy financial condition and having a good image within the community. Therefore, *sukuk* rating is strongly influenced by the issuer's financial performance.

PT. Pemeringkat Efek Indonesia (Pefindo) is an independent rating agency in Indonesia, issuing nine levels of bond rating and *sukuk* (idAAA to idD). This rating mechanism is expected to reduce the asymmetry of existing information between issuers and investors. However, a problem arises because the rating of *sukuk* is often not updated because PT. Pefindo only reviews and updates its *sukuk* ratings once a year. Since investment decisions are made by investors all the time, they need an appropriate tool to be able to independently predict the *sukuk* corporate ratings as a consideration when making investment decisions.

The issue raised in this study is how to assign ratings for the issuance of *sukuk*, which would be beneficial in reducing information asymmetry between investors and issuers. Not all securities are being rated by the agencies, the suggested model, therefore could be used as one of reference to compare between the non-rated securities and the rated ones in order to guide investor in their buying or selling strategy. Apart from that, nowadays Basel II framework allows that bank to have their own internal rating system for capital adequacy requirement. It is therefore necessary to develop model on *sukuk* rating prediction in order to provide an insight to the rating process and understand

the factors that significantly influence *sukuk* ratings in Indonesia.

The study of *sukuk* rating can adopt the basic concept of credit rating and bond prediction because of the characteristics of *sukuk* with bonds, namely an easy-to-sell financial instrument which is transferred to the secondary market, obtains credit rating and earns credit strengthening (credit enhancement). Moreover, this is supported by the fact that the majority of studies on conventional bonds can be applied to reviews of the issuance of *sukuk*.

This research differs from previous research relating to the prediction of bond ratings and *sukuk*, such as that conducted by Horrigan (1966), Pinches and Minggo (1973), Kaplan and Urwitz (1979), Belkaoui (1980), Touray (2004), Arundina and Omar (2009), Sudaryanti (2011) and Wisesa (2016), because this study adds *sukuk* characteristic's variable such as *sukuk* structure that can distinguish bond and *sukuk* principle, as well as different in terms of risk nature.

The study consists of five chapters. The first chapter is the introduction chapter. The following chapter provides the definition of *sukuk* and credit rating as well as literatures on credit rating. The third chapter discusses about data and methodology. Subsequently, chapter four presents the result and analysis of the study. The last chapter is a summary and conclusion of the major findings and some practical implications of this study.

Literature Review

Sukuk. According to AAOIFI, *Sukuk* are certificates of equal value that represent an undivided interest in the ownership of an underlying asset, usufruct and services or assets of particular projects or special investment activity. *Sukuk* certificates are unique in the way that the investor becomes an asset holder. Therefore, the investor should bear the risk of its underlying assets. *Sukuk* certificate holders carry the burden of these unique risks. Unlike a bond that is confined to the loan upon interest, *sukuk* can be structured from various applications of Islamic financial contracts. Nonetheless, *sukuk* has some similarities to conventional bonds because they are structured with physical assets that generate revenue. The underlying revenue from these assets represents the source of income for payment of profits on the *sukuk*. According to AAOIFI, *Sukuk* are issued on various transaction contracts. These *sukuk* are *Ijara, Murabaha, Salam, Istisna, Mudharabah* and *Musharaka, Muzara'a* (sharecropping), *Muqasa* (irigation) and *Mugharasa* (agricultural partnership). However, the last three types are rarely used in the market.

In Indonesia, corporate *sukuk* only applied two *sukuk* structures: *Mudharabah* and *Ijarah*. *Mudharabah* structure used profit sharing mechanism, where both *sukuk* issuer and investor involve in partnership scheme and distribute the profit from the underlying asset activities according to the predetermined ratio along the tenor. On the other hand, *Ijarah* structure simply means lease method. The underlying asset will be leased out to get some profit that will be

distributed to the investor until *sukuk* reach its maturity.

In respect of the *sukuk* ratings, the rating agencies only provide opinions on the credit aspects associated with the instrument. Because the opinion that *sukuk*'s compliance with sharia is neutral from a credit perspective, the *sukuk* rating does not imply confirmation of sharia compliance. Therefore, the analysis of the *sukuk* rating prediction can use the same financial ratios used to predict bond rating because the rating prediction measures the issuers' ability to make contractual payments to investors and gauges the default probability of the issuers. According to Moody's (2006), the key to the evaluation of *sukuk* is the rate of returns (returns) or profit (profit), cash flow payments and instrument risk. Rating agencies believe that sharia compliance label on *sukuk* is an expert opinion so the rating agencies do not comment on conformity with sharia unless it affects the credit risk.

Credit Rating. A credit rating is a borrower's creditworthiness assessment, often their status in respect of debt security and other financial obligations (Bennell et al., 2006). This assessment is based on a particular methodology and criteria. The credit rating is a creditworthiness assessment of the borrower based on the relevant risk factors, expressed by a market-grade rating or grade-dependent symbol to differentiate credit quality (Bennell et al., 2006).

Credit ratings have become the main benchmark for financial institutions to assess credit risk, improve cash flow, reduce possible risks and make managerial decisions (Huang et al., 2004). They are also the main consideration when making financial decisions and they provide benefits for participants such as issuers, investors, market regulators and intermediaries (Chen & Shih, 2006).

Credit rating agencies make an assessment that includes an overview of the economics and business sectors of product publishers, competitors' offerings and changes in size and market share of these products. The rating agency provides an appropriate commentary on the information contained in the annual report; the issuer should share its strategic and operational capabilities with the analyst, and indicate that the issuer can meet the security guarantees and requirements (Graeme, 2014).

Previous Studies. Previous research has not provided any in-depth analysis of *sukuk* rating so, because of the similarity in the characteristics of *sukuk* and bonds, it must be observed from research relating to conventional bonds: *sukuk* is an easy-to-sell financial instrument that is transferred to the secondary market, obtaining credit rating and earning credit strengthening (credit enhancement).

The first study relating to the prediction of bond rating was carried out by Horrigan (1966). He examined the ratings of bonds in the United States using an ordinary least square (OLS) regression model with a bond rating as a dependent variable. There were five financial ratios, namely

total assets, working capital/sales, net sales/value, operating profit/sales, net/debt value, as independent variables and one dummy variable for subordinate status. The study was able to predict 58% and 54% of new ratings and Moody's change ratings as well as 52% and 57% of new bond ratings and S&P's change bond ratings for the period 1959–1964. Pinches and Minggo (1973) conducted a study to develop and test industrial bond rating prediction models using the Multiple Discriminant Analysis (MDA) model with six independent variables. Kaplan and Urwitz (1979) predicted industrial bond rating using interest coverage ratio, leverage ratio, profitability ratio, size variables and stability variables. Belkaoui (1980) conducted a study relating to the prediction of bond rating by using three main variable characteristics: the issuer company, the debt instrument issued and a variable representing the market view of the company. Touray (2004) employed the independent variable used by Belkaoui (1980) by comparing the MDA and m-logit methods to analyse bond ratings in Malaysia. The results indicate that the multinomial logistic method is better than MDA with a 75% correct prediction of new ratings by the Malaysian Rating Agency (RAM).

The initial study relating to the prediction of *sukuk* rating was developed by Arundina et al. (2009) in Malaysia. Using multinomial logistics with six independent variables, the developed model was able to predict 80% of the actual *sukuk* ratings. Then, Arundina et al. (2015) extended the independent variables used in subsequent research to 23 variables for the study of the determinant of *sukuk* ratings in Malaysia, using both multinomial logistic regression and Artificial Intelligence Neural Networks (AINN) methods.

Related studies into predicted *sukuk* ratings in Indonesia have previously been developed by Sudaryanti (2011) and Wisesa (2016). Sudaryanti (2011) developed a study using six variables with the ordinal logistic regression (o-logit) method. Wisesa (2016) conducted a study using independent variables consisting of liquidity ratios, leverage, profitability and activity, and non-financial ratio variables such as firm size. It used F test and t-test methods. The study results can predict 85.4% of actual ratings made by PT. Pefindo.

Based on previous research, it can be concluded that the analysis of financial indicators using financial ratios is extremely useful in evaluating a company. Some research results also demonstrate that the logistics model provides accurate results to predict bond and *sukuk* ratings. This supports our decision to use *sukuk* ratings as the dependent variable, financial variables (financial ratios) and non-financial variables (assurance and *sukuk* structure) as independent variables, and the multinomial logistic regression model as the method in this study. Apart from financial variable used by previous studies such as Arundina and Omar (2009), Belkaoui (1980), Horrigan (1966), Kaplan and Urwitz (1979), Pinches and Minggo (1973), Sudaryanti (2011), Touray (2004) and Wisesa (2016), this

study also applies specific variables such as *sukuk* structure and guarantee status to be included in the model. Each *sukuk* structure has different influence in terms of risk, therefore important to be included in the model. In this paper, we are interested to focus on Indonesian corporate *sukuk*. The variables are processed using multinomial logistic regression and it employs a research sample consisting of 81 *sukuk* ratings of corporations in Indonesia in the investment grade categories idAAA, idAA and idA issued by PT. Pefindo.

MATERIALS AND METHODS

Sample

The object of this research is a corporate *sukuk* and the sampling technique used is purposive sampling. The sampling was carried out by collecting the corporation's *sukuk* rating data from PT. Pefindo, then collecting the financial ratios of the company which were obtained from Bloomberg. The second phase was carried out by collecting the status of collaterals and the structure of *sukuk* from the prospectus and the issuer's financial statements, with the following criteria:

1. The selected *sukuk* is domestic corporate *sukuk* from non-financial industry because there are differences in operational characteristics between financial institutions and other industries that imply the differences in the recording in the financial statements.
2. Apart from that, the *sukuk* sample is the *sukuk* whose rank is issued by PT. Pefindo in the investment grade categories idA, idAA and idAAA. Most of *sukuk* are issued with top three investment grade rating because of *sukuk* with BBB rating is very few.
3. Furthermore, *sukuk* with BBB rating has several missing data, hence cannot be included in the model. Hence, the selected *sukuk* sample has the complete data required according to the variables used in this study.

Multinomial Logistic Regression Model

This study adopted research model from Arundina et al. (2015). According to Touray (2004), multinomial logistic regression can be used for research with dependent variables that are non-linear with more than two categories of problems. Forward stepwise model is conducted in SPSS in order to achieve the research objective to be able to predict and find the most appropriate model based on its significance. In this case, there are three classes of *sukuk* rating such as idAAA, idAA, idA and idA is selected as reference category. In accordance with the research by Agresti (1996), Touray (2004) and Arundina et al. (2009, 2015), the proposed equation is:

$$log\frac{p(group_j)}{p(group_I)} = \propto_i 0 + \beta_{i1}X1 + \beta_{i2}X2 + \beta_{i3}X3 + \beta_{i4}X4 + \beta_{i5}X5 + \beta_{i6} * (D1) + \beta_{i7} * (D2) \quad \ldots (1)$$

Where J in the divisor refers to the baseline category, j small in the numerator is based on other categories.

$\propto_i 0$ = constant term

β = the respective coefficient of the predictor X

X1-X9 = predictor variable (independent)

D (1) and (2) = dummy variable

In this case can be summarized in the following equation:

$$log\frac{p(idAAA)}{p(idA)} = \propto_i 0 + \beta_{i1}X1 + \beta_{i2}X2 + \beta_{i3}X3 + \beta_{i4}X4 + \beta_{i5}X5 + \beta_{i6} * (D1) + \beta_{i7} * (D2) \quad \ldots (2)$$

$$log\frac{p(idAA)}{p(idA)} = \propto_i 0 + \beta_{i1}X1 + \beta_{i2}X2 + \beta_{i3}X3 + \beta_{i4}X4 + \beta_{i5}X5 + \beta_{i6} * (D1) + \beta_{i7} * (D2) \quad \ldots (3)$$

Variables

Dependent Variables. Model testing employed rating as dependent variable. In this study, top three *sukuk* ratings are idAAA, idAA and idA from the nine *sukuk* ratings issued by the rating agency PT. Pefindo. Rank one (1) shows the lowest rank of idA while three (3) shows the highest rank of idAAA.

Independent Variables. Financial and non-financial indicators were selected on the basis of previous research as independent variables. Table 1 below contains a summary of the independent variables and size used in this study.

The obtained data were processed using Microsoft Excel 2013 and the SPSS program in the form of cross-sectional data. Tests on the hypotheses in the research were conducted by using an analysis of

Table 1

Independent variables

Variable		Formula	Source	Hypothesis
Size	Total assets	Total assets as mentioned in financial report	Horrigan (1966), Kaplan and Urwitz (1979), Belkaoui (1980), Kamstra (2001), Touray (2004), Chancharat et al. (2007), Arundina and Omar (2009), Arundina et al. (2015)	The larger the total size of a company's assets, the more likely it is that the *sukuk* will be ranked larger, and vice versa.
Coverage	Coverage ratio	$\frac{\text{EBIT}}{\text{profit expense}}$	Horrigan (1966), Belkaoui (1980), Kamstra (2001), Touray (2004), Arundina and Omar (2009), Arundina et al. (2015)	The higher the interest coverage ratio of a company, the more likely the *sukuk* will be given a higher rating, and vice versa.

Table 1 *(Continued)*

Variable		Formula	Source	Hypothesis
Profitability	ROA	$\frac{\text{net income}}{\text{total aset}}$	Kamstra (2001), Chancharat et al. (2007), Arundina and Omar (2009), Arundina et al. (2015)	The higher the current ratio of a company, the more likely the *sukuk* will be given a higher rating, and vice versa.
Liquidity	Current ratio	$\frac{\text{current asset}}{\text{current liability}}$	Belkaoui (1980), Arundina et al. (2015), Chan and Jegadeesh (2004), Chancharat et al. (2007)	The higher the current ratio of a company, the more likely the *sukuk* will be given a higher rating, and vice versa.
Leverage	Long-term leverage ratio	$\frac{\text{long term debt}}{\text{total aset}}$	Belkaoui (1980), Chancharat et al. (2007), Touray (2004), Arundina and Omar (2009), Arundina et al. (2015)	The lower the long-term leverage ratio, the more likely the *sukuk* will get a higher ranking, and vice versa.
Guarantee			Touray (2004), Arundina and Omar (2009), Arundina et al. (2015)	Guarantee affects *sukuk* ratings significantly, assuming all other things are the same (ceteris paribus).
Sukuk structure			Arundina et al. (2015)	*Sukuk* structure affects *sukuk* ratings significantly, assuming all other things are equal.

multinomial logistic regression (m-logit) by forward stepwise in SPSS. The test was carried out by an assumption test stage followed by a statistical test and proof of model. The assumption test consisted of checking for missing data, an outlier test and a collinearity test using matrix Pearson correlation in SPSS. Furthermore, the statistical test would be presented in three parts, namely the likelihood ratio test and Wald test, the overall fit test and Pseudo R-square, and the result of the classification of the multinomial logistic model.

RESULTS AND DISCUSSIONS

Research Sample

The sample involves a company that issued *sukuk* and obtained a rating by PT. Pefindo. The sampling method used was purposive sampling and the sample taken was selected based on the criteria described in the previous chapter. The sample selection was conducted by collecting the *sukuk* rating data of the corporation as of the date of issue of rating (rating issuance) obtained from PT. Pefindo, consisting of idAAA, idAA and idA. Then, the company's financial ratios data was collected two quarters before

the date of the *sukuk* rating obtained from Bloomberg, in accordance with the variables required in the research, and then the status of collateral and the structure of *sukuk* are obtained from the financial statements and *sukuk* prospectus. Table 2 below presents the sampling process.

Initially, the amount of data was 145 *sukuk* ratings as of rating issuance. Then, the number should be reduced by the *sukuk* issued by the financial industry due to differences in operational characteristics between financial institutions. This implies the difference in the financial reporting record of 51 *sukuk* ratings. Based on the predetermined criteria in the sample selection as described previously, the final observation count in this study was 81 *sukuk* ratings.

The sample in this study consisted of 10 issuers that were rated by PT. Pefindo in the idA, idAA and idAAA rating categories (investment grade) between 2007 and 2017. The idA rating class consisted of Adhi Karya 2012–2015, Mayora 2008–2009, Matahari Putra Prima 2009–2014, Tiga Pilar Sejahtera Food 2013–2016, Summarecon 2013–2015, Sumber Sewatama 2013–2015 and Adiperkasa Partners 2009–2012. The idAA rating class consisted of Mitra Adiperkasa 2013–2014, Indosat 2007–2012, Mayora 2010–2017 and PLN 2010–2012. The idAAA rating class consisted of PLN 2013–2016 and Indosat 2013–2016.

Analysis and Results of the Multinomial Logistic Regression

This research used the multinomial logistic regression method with the forward stepwise method in SPSS. The stepwise method ensures that the system only shows the significant variables in the research model, based on the chi-square value of the likelihood ratio test. The objective is to be able to predict the ratings of corporate *sukuk* in Indonesia issued by PT. Pefindo and to identify the factors that are most significantly influential in the research.

Multinomial logistics evaluated the model by performing some significance tests. First, the coefficient significance was tested based on the likelihood ratio test and Wald test. Second, the fit and pseudo R-square tests aimed to analyse the relationship between the independent variables and the dependent variable in the model. Thirdly, the classification result was derived from the prediction of the multinomial logistic regression model.

Table 2

Research sample

Sample	Amount
Amount of initial data	145
Minus data from the financial industry	51
Minus rating data under idA	6
Minus incomplete data	7
Final observations	81

Likelihood Ratio and Wald Test. The first step in the multinomial logistic regression test involved the likelihood ratio test and Wald test as presented in Table 3. According to Menard (1995), likelihood test ratio is an accurate test to show the predictors (independent variables) that significantly influence the dependent variable. Whereas, Agresti (1996) and Menard (1995) explained that the coefficient (B) Wald test in the m-logit model described the probability/ odds relationship between one rating class and the baseline category. This test aims to determine the ability of independent variables to distinguish the two groups in the research model.

Likelihood Ratio Test. The likelihood ratio test serves to show the test results regarding the impact of each independent variable in the final model. By using the forward stepwise method, the result of the likelihood ratio test shows only the variables that significantly influence based on the chi-square value in the test. Based on the likelihood ratio test, three of the seven independent variables were most significance for the *sukuk* rating, namely interest coverage ratio, ROA and total assets. ROA demonstrates company profitability and measures issuers' ability to benefit from effective asset management. These results are in accordance with the results of the studies conducted by Kamstra (2001), Chancharat et al. (2007) and Arundina et al. (2015) that use ROA as a proxy for corporate profitability which affects the probability of default and *sukuk* ratings. In accordance with Arundina (2015) research results, ROA indicates the level of efficiency and the performance of companies that have a positive relationship with the strength of the company; the higher the ROA, the better the company performance.

Interest coverage ratio demonstrates the financial strength of a company to face long-term lending rates by using cash flow. This variable proved able to influence the rating of corporate *sukuk*, in accordance with Horrigan (1966), Belkaoui (1980), Kamstra (2001), Touray (2004) and Arundina et al. (2009, 2015) who also argued that interest coverage ratio is an important variable when making *sukuk* rating predictions.

Table 3

Results of multinomial logistic regression

Effect	Likelihood ratio test	Wald test	
	Sig	$\frac{p(idAA)}{p(idA)}$	$\frac{p(idAAA)}{p(idA)}$
Intercept	-	-5.123	-644.137
ln_int_cov_rat	0.011*	12.969*	47.099
ln_ROA	0.001**	1.947**	-410.271
ln_TA	0.003*	-5.123*	87.870

Note: (1) IdA as the baseline/reference category, (2) * and ** shows 5% and 1% significant level respectively

Total assets show the size and resources of the issuer. According to Horrigan (1966), large companies have bigger profits than small companies and are able to absorb the impact of an economic crisis. This is in accordance with studies by Horrigan (1966), Kaplan and Urwitz (1979), Belkaoui (1980), Kamstra (2001), Touray (2004), Chancharat et al. (2007), Arundina and Omar (2009), and Arundina et al. (2015) which used total assets in bond rating predictions and *sukuk*.

Whereas, the model indicates that the other four variables are not significant such as current ratio, long term leverage ratio, *sukuk* structure, and guarantee status. In the case of guarantee status, it is illustrated that all of AAA *sukuk* in the sample is government owned company (BUMN), thus the guarantee status from bank or parents company were not significant to differ the rating based on the result. It is suggested for further research to include dummy variable on ownership status (government owned or private company) to minimize the bias.

The structure of *sukuk* used in Indonesia currently consists of *sukuk* mudharabah and *sukuk* ijarah. If the issuer issues *sukuk ijarah*, the payment will be paid to the investor with a fixed value (fixed rate) on each contractual payment. On the other hand, if the issuer issues *sukuk mudharabah*, the payment from the issuer to the investor is not fixed, in accordance with the predetermined profit-sharing ratio, and it depends on the profit of the issuer's business. Even though theoretically both structures have different risk profile, however, in practice most of *sukuk mudharabah* is structured in a way that the payment become fixed, therefore do not contribute additional risk.

Corporations issuing *sukuk* with mudharabah contracts are Adhi Karya and Mayora. The Adhi Karya Company has issued IHI *Sukuk* Mudharabah Sustainable I ADHI Phase I with a value of one hundred and twenty-five billion rupiah with a five-year term and a profit-sharing arrangement, a *sukuk* holder ratio of 73.05% with a payment of revenue sharing every three months. The *sukuk* mature on July 3, 2017. The Mayora Company issued 2 Mayora Indah *sukuk* mudharabah in 2012 for a total of two hundred and fifty billion rupiah with a fixed revenue share revenue of 20.625 billion rupiah per annum, although it used a mudharabah contract.

Nonetheless, it is important to highlight that *sukuk* rating reflects overall performance of a *sukuk* issuer; it needs comprehensive assessment of company's credit worthiness (Standard and Poor's, 2003). In this case, refer to the leverage or current ratio variables, these are shown that some *sukuk* issuers have high leverage level yet, still maintain high rating because the other important variables are in adequate level. Thus, it is difficult to interpret the effect of one variable without considering the other variables.

Wald Test Parameter Estimation. Referring to Agresti (1996) and Menard (1995), the coefficient (B) in the m-logit model describes the probability/odds relationship between one rating class and the baseline category. This test aims to determine the ability of independent variables to

distinguish the two groups in the research model. In this research, the coefficient mark in the m-logit model explains the probability of obtaining an idAAA rating or an idAA rating compared to an idA rating. The coefficient mark in the result shows the positive or negative relationship between the independent variable and the dependent variable relating to the change of one unit of independent variable (predictor) to the issuer's probability of being in a certain rating class compared to the reference class.

Consistent with the likelihood ratio test results, there are three significant variables that can distinguish the two groups in the study, namely interest coverage ratio, ROA and total assets. Based on the results in the estimation of Wald test parameter, the following equation can be formed:

$$\frac{p(idAA)}{p(idA)} = -60.391 + (-5.123) \ln \text{int coverage ratio} + (12.969) \ln ROA + (1.947) \ln \text{total assets} \quad \ldots (4)$$

$$\frac{p(idAAA)}{p(idA)} = -644.137 + (47.099) \ln \text{int cov ratio} + (-410.271) \ln ROA + (87.870) \ln \text{tot assets} \quad \ldots (5)$$

Based on the above two test results, the likelihood ratio test is an accurate test in the logistic regression model and more accurate than the Wald test since the Wald test results show the coefficients (b) and standard error (SE), with the Wk^2 equation = [Bk / (SE of bk)]^2 which has the disadvantage that the larger b (coefficients), then the standard error estimate increases, which can result in failure to reject H zero when H is false. So, the result of the above likelihood ratio test is more accurate than the estimation of Wald test parameters because the likelihood ratio test shows the independent variables that significantly influence the dependent variable.

Testing Overall Fit and Pseudo R-square.

Overall Fit. The purpose of the fit test is to determine the influence of each independent variable on the dependent variable and to assess the fit of the research model with the data. The first step is to test the overall model by comparing the value between -2 intermediate Log-Likelihood (intercept only) and the Log-Likelihood final value. Decreasing the initial value of the intercept-only model with the final value after adding the variables in the study will show the suitability of the research model with the variables used. The value of Log-Likelihood in the initial model (172.085) is greater than the value in the final model (29.400). In the overall fit test result, there is a decrease in the Log-Likelihood value in the initial model and the final model with strong significance value, showing that the increase of variable in the prediction model makes the model better in predicting the *sukuk* ranking factor.

Pseudo R-square. Pseudo R-square result is used to show the ability of independent variables to explain the dependent variable. The closer it is to the value of one, the stronger the relationship. This test showed the results of the Psseudo R-square measurements from Cox and Snell, Nagelkerke and McFadden. The value of Cox and Snell was 82.8%, the value of

R-square Nagelkerke was 93.8% and the R-square value of McFadden was 82.3%. These results indicate that the independent variables used are able to explain the dependent variable in this study and they have a strong relationship.

Classification results of the Multinomial Logistic Model. Table 4 shows the predicted results from the approximate coefficients of the multinomial logistic model in the study. The results highlight that this model can predict 90.1% (73/81) of all actual *sukuk* ratings issued by PT. Pefindo. This model is outperformed several bond rating studies such as Kamstra et al. (2001), Touray (2004), Chancharat et al. (2007) as well as *sukuk* rating previous studies done by Arundina and Azmi et al. (2009), Sudaryanti (2011) and Wisesa (2016). However, the study of *sukuk* rating in Malaysia by Arundina et al. (2015) showed slightly better accuracy ratio with same method; 91,72%. Therefore, it is concluded that the model has performed well and adequate to be applied.

Table 4 indicates the highest level of classification achieved by the idAAA rating of 100% was able to predict all (24/24) observations in the idAAA rating validly, then idA was able to predict 88.9% (32/36) of observations in the idA rating appropriately, and finally idAA was able to predict 81.0% (17/21) of observations in the idAA rating appropriately. There is an issue of misclassification cost of Type I and Type II error as suggested by Gujarati (1995). Type I error occurs when non-going concern company is predicted as going concern hence will cause an investor may lose the investment. Type II error arises when a going concern company is predicted as non-going concern. In other words, the Type I error occurs when the prediction is having higher rating than the actual, whereas Type II error happens the other way around. As compared to other previous study on *sukuk* rating), this research has superiority in terms of accuracy ratio in misclassification of Type I error.

CONCLUSIONS

This study has endeavoured to develop and test a model that can predict the ratings of a corporate *sukuk* for the investment grade categories issued by PT. Pefindo in Indonesia, and to identify the factors

Table 4
Classification results

Observation (Actual PT. Pefindo)	Prediction result			
	idA	idAA	idAAA	Classification ratio
idA	32	4	0	88.9%
idAA	4	17	0	81.0%
idAAA	0	0	24	100.0%
Percentage overall	44.4%	25.9%	29.6%	90.1%

that have the most significant influence. The results have shown that variable interest coverage ratio, ROA and total assets significantly influence the corporate *sukuk* ratings provided by PT. Pefindo in Indonesia. First, interest coverage ratio is an accounting ratio that shows the financial strength of a company and thus its ability to face lending rates by using company cash flow. This ratio also reveals whether the company is able to make contractual payments to *sukuk* holders because every time issuers issue *sukuk* or conventional bonds, they obtain additional interest payable from the issuer of the instrument. Second, ROA demonstrates company profitability and measures the ability of issuers to profit from effective asset management. Third, the total assets owned by the company highlight its size.

The results show that 90.1% (73/81) of the *sukuk* ratings in the cases under observation could be classified correctly, according to the actual *sukuk* ratings issued by PT. Pefindo. The model can be tested further to holdout sample to maintain the accuracy ratio. However, the initial model developed in this research could enable companies to conduct an internal assessment that could be used to mitigate any potential risk and to predict the rating to be obtained from the rating agency. As for investors, the model that has been developed in this research could be used to analyse the *sukuk* ratings before investment decisions are taken. In this way, potential investors could invest any excess funds in companies which show good performance.

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The Roles of Functional Competencies, Dynamic Capability and Technology Flexibility in Crafting Product Superiority: A Study of Indonesian Packaged Software Developers

Minsani Mariani[1]*, Firmanzah Firmanzah[2], Tengku Ezni Balqiah[2] and Sari Wahyuni[2]

[1] Binus Business School, Bina Nusantara University, DKI Jakarta, 12240, Indonesia
[2]Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

Strong software product development competencies, including customer competence, technical competence and managerial competence, have been identified as critical factors in crafting product superiority. However, given the great degree of uncertainty, software developers must continually cope with extremely rapid changes that demand innovative technological and managerial responses. Based on dynamic capability theory and strategic organizational flexibility, this study developed a theoretical model to explore the effect of dynamic capability and technology flexibility on product development competencies and product superiority. Data were collected from 112 business executives from packaged software firms in Indonesia. Partial Least Squares (PLS) analysis supports the study's hypotheses that when dynamic capability and technology flexibility are introduced to the model, the relationship between a software firm's functional competencies and product superiority becomes insignificant. The findings can provide guidelines for software developers to cultivate dynamic capability and pursue technology flexibility to craft superior software products.

Keywords: Dynamic capability, product development competencies, product superiority, technology flexibility

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E-mail addresses:
mmariani@binus.edu (Minsani Mariani)
fiz@pascafe.ui.ac.id (Firmanzah Firmanzah)
tebalqiah@yahoo.com (Tengku Ezni Balqiah)
sari.whyn@gmail.com (Sari Wahyuni)
*Corresponding author

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INTRODUCTION

The challenges in the Indonesian software industry are becoming even more difficult with the worldwide trend of globalization. The amount of packaged software imported to Indonesia does not match the amount of exported packaged Indonesian software. According to Statistics Indonesia (2013), although there was an increase of 3.3% in exported packaged software from 2010 to 2013, the growth in imported packaged software was still much higher (23.3%).

Historically, the success rate for software development projects is low. A survey conducted by Chaos Report (2015) revealed that only 9% of large companies' projects were successful, while the figures for medium and small companies were slightly better, at 16.2% and 28%, respectively. The survey also revealed that changes to requirements is the third most important factor leading to unsuccessful projects. Organizations often change the requirements for software development projects because the business context changes rapidly. Factors such as the globalization trend, rapid innovation, and new business models result in a high-velocity business landscape.

In addition to volatility in clients' business requirements, software firms also must cope with rapid innovations in information technology as well as their particular business landscape. The rise of Software as a Service (SaaS), which is perceived to offer a lower total cost of ownership, is an example. The growing field of mobile applications is another example. Low-cost devices such as smart phones and tablet computers have become new platforms to drive the growth of mobile applications. In addition, mergers and acquisitions constantly reshape the software industry as companies reinvent themselves to provide full solutions beyond mere software development.

As Eisenhardt and Brown (1999) and Madhok and Tallman (1998) commented, there was a great deal of pressure place on software development firms to ensure that they developed strong management and innovation capabilities in order to keep pace with the volatile software industry. According to Sambamurthy et al. (2003), companies with an innovative approach, flexible strategies, and the ability to respond to changes rapidly are amongst the most able to stand out from the competition. Thus, as per the work of Eisenhardt and Tabrizi (1995); Hamel and Prahalad (1994), it is argued that when companies are able to respond to external changes in this way, they are able to gain a significant source of competitive advantage as a result of the competencies developed. Teece et al. (1997) referred to this approach as 'dynamic' capabilities; with Galunic and Eisengardt (2001) explaining that this referred to the strategic approaches taken to best utilise resources in order to develop capabilities that helped them to respond to external change and volatility. The development of dynamic capabilities has been said to improve flexibility within the company (Volberda, 1996) with Das & Elango (1995) further suggesting that companies' ability to respond quickly and effectively

was impacted by the flexibility of product development technology.

This research explores the connections between dynamic capability, flexibility, and company performance in the same context. Finally, because the existing literature focuses on customized and traditional software development firms, this study specifically focuses on packaged software companies in Indonesia to address the gap in current knowledge.

Literature Review

This study develops a conceptual model based on a research gap that demonstrates the need to examine how different types of organizational abilities (operational or functional capabilities and dynamic capability) interrelate to influence competitive advantage in the software development setting.

Software Development Functional Competencies. Software development functional competencies refer to the ability to effectively develop new products. Danneels (2002) described the three most crucial functional competencies in software development which were customer, technical, and managerial competences. Customer competence (CC) refers to a firm's ability to transform customer needs into an economically viable product that satisfies those needs. Technical competence (TC) enables a firm to evaluate the technical feasibility of a new product, transform it into a design and develop the final product. Finally, managerial competence (MC) primarily includes operational abilities to organize cross-functional groups and facilitate their activities. Managerial competence is a spanning competence that aims to combine, integrate, and exploit technical (inside-out) and customer (outside-in) capabilities (Iansiti & Clark, 1994).

Dynamic Capability. Dynamic capability refers to the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing requirements (Teece et al., 1997). This ability involves scanning the external environment and recognizing business opportunities and threats, understanding the potential and limitations of internal resources, and aligning and matching the firm's resources. The proposed dynamic capability in this study are sensing, learning, and integrating.

Technology Flexibility. Nelson et al. (1997) defined technology flexibility as "the ability to adapt to both incremental and revolutionary change in the business or business process with minimal penalty to current time, effort, cost or performance". The processes involved in software product development include management and technical processes and the procedures that are used to maintain an application (Garud & Kotha, 1994). Furthermore, two dimensions are defined namely structural flexibility reflects the capability to successfully adapt a technology to business process changes, which must be pro-actively designed in the technology, and process flexibility refers to the ability of people to make

changes to a technology using management processes that support changes in business requirements.

Software Product Superiority. Software product superiority is defined based on the design of high-quality as well as cost-effective products that meet customer needs while outperforming competitors' products (Vorhies & Harker, 2000). Eisenhardt and Tabrizi (1995); Iansiti and Clark (1994) added that software development success was mostly measured by the time to market (the time it takes to develop the product), process efficiency (development costs), and the product's quality and innovativeness. In general, software development performance can be viewed as a measure of product superiority, which has four major aspects namely the product's technical performance, the product's applicability, the product's affordability, and the product's potential for growth (Cooper, 1985; Haigh, 2010; Westfall, 2014).

Product Technical Performance. Product technical performance refers to accuracy, security, availability, maintainability and usability (Haigh, 2010; Issac & Rajendran, 2006; Westfall, 2014). Accuracy indicates the level of precision, correctness and/or freedom from error in the software's calculations and outputs. Security refers to the extent to which unauthorized access to the software is prevented. Availability describes the extent to which the software is available for use when needed. Availability closely resembles reliability because unreliable software that fails frequently is typically unavailable for use because of the failures. Maintainability focuses on the ease with which an application's software can be modified to change or add capabilities, correct faults, or adapt to a changing environment. Usability reflects the software's user-friendliness or the ease with which the usage of the software can be learned with limited help (Isaac & Rajendrand, 2006).

Product Applicability. Product applicability indicates the degree to which a software product exceeds customer expectations regarding functionalities or features (Cooper, 1985; Zirgler & Maidique, 1990). Product applicability includes (i) the extent to which the software meets customer needs relative to competitors; (ii) the extent to which the software has unique features; (iii) the extent to which the software allows users to perform tasks; (iv) the extent to which the software has richness features for future needs; and (v) the extent to which the software increases customers' business performance (Cooper, 1985).

Product Affordability. Product affordability indicates the extent to which the perceived value of the software product is greater than its perceived cost to the customer (Zirgler & Maidique, 1990). In addition, a firm's pricing flexibility (e.g., capital expenses, operating expenses or per-transaction expenses) is also important to increasing affordability. Furthermore, modularity enables firms to offer modular pricing that allows customers to purchase additional modules of the software as their business and demand grows.

Product Potential for Growth. Product potential for growth indicates the degree to which the software supports customer business growth. Product potential for growth includes scalability, portability, interoperability and accessibility. Scalability refers to the extent to which the software can take advantage of additional resources to perform efficiently under increased demand. Portability indicates the effort required to transfer the application from one operating system to another. Interoperability describes the effort required to integrate the application's software with other systems. Accessibility measures the extent to which the application can be accessed through multiple channels.

Development of Hypotheses. The main capabilities in software development that are needed to develop new products are technical, customer, and managerial capabilities (Danneels, 2002). Technical capability is needed to understand product technologies, evaluate the feasibility of product designs, test prototypes, and assess technical specifications. Customer capability is defined as the ability to market new products to customers through advertising, distribution, pricing, selling, and order entry (Day, 1994). Customer capability in software development also includes industry knowledge or familiarity with customer needs in a particular industry. Mastering the user needs can reduce the uncertainty in the system requirements phase. Finally, managerial capability refers to the ability to administer activities at the operational level of the software development unit by monitoring and reporting on progress, designing incentives, and managing conflicts (Danneels, 2002). The three types of organizational competence are described as: inside-out, outside-in, and spanning. Inside-out are competences that are activated by customer requirements, competitive challenges, and external opportunities (customer competence). Outside-in abilities are those that connect superior internal competences to the external environment (technical competence). Spanning competence integrates inside-out and outside-in competences (managerial competence).

With these three capabilities, a packaged software firm is capable of building technically sophisticated new products that better meet customer needs. In contrast, outdated functional competences result in inferior new products. Thus, product superiority is directly dependent upon its functional competences.

H_1: The software development functional competencies of a packaged software firm positively influence its product superiority.

When failing to meet environmental demands because of inappropriate functional competencies, small inconsistencies may gradually lead to larger failures, which are referred to as core rigidities (Leonard-Barton, 1992). Organizations may lose the ability to innovate their knowledge resources if they fall into any of three traps – familiarity, maturity, and propinquity (Zahra & George, 2002). First, familiarity refers to overemphasizing existing knowledge and preventing new knowledge acquisition

and creation. Second, maturity results from the need for predictability. Third, propinquity (nearness) causes organizations to concentrate on areas that are very close to their field of expertise and to avoid innovation. Dynamic capability helps software development teams avoid these traps by enabling the effective reconfiguration of existing, potentially rigid resources. Dynamic capability thus supports a virtuous cycle of resource improvement by introducing new, innovative resource configurations, avoiding core rigidities, and escaping competency traps.

Schumpeter (1934) argued that innovation, or the creative destruction of existing resources, was the most important source of competitive advantage. Continuous change is intimately related to achieving constant innovation (Brown & Eisenhardt, 1997). Leonard-Barton (1992) added that competition was primarily based on incremental innovation, which gradually led to the development of new competences. Wheeler (2002) also viewed dynamic capability as the ability to create resource configurations that provided the opportunity for value creation.

Dynamic capability is challenging to understand and describe and thus to replicate. A rare and complex process that recurrently manages a blend of knowledge resources is arguably difficult to imitate (Henderson & Cockburn, 1994). Moreover, dynamic capability is not very vulnerable to substitution because of its complexity, which makes it problematic to describe, explain, or transfer. In sum, the idiosyncratic nature of dynamic capability and its underlying factors, including its overall complexity and the evolutionary way it develops, make it difficult to replicate. Therefore, dynamic capability has the basic properties to qualify for a source of product superiority.

H_2: The dynamic capability of a packaged software firm positively influences its product superiority.

Alignment in software product development is a critical success factor (Krishnan & Ulrich, 2001). Leonard-Barton (1992) proposed the term 'rigidities' to describe how effective competencies could transform into liabilities and actively created problems if they (a) did not adapt to the environment or (b) were not properly utilized. Examples of such misalignment are outdated skills, dominance of inappropriate or costly resources, and lack of the requisite knowledge. Empirical evidence suggests that deviations from the strategy-environment alignment have negative implications (Venkatraman et al., 1990). Technology flexibility addresses the key challenges in misalignment by quickly identifying and acquiring the capability of the product design adapted to changes and then developing the ability to make changes by using management process that support these changes (Nelson et al., 1997). Therefore, alignment is a matter of degree; the closer the functional competences match the environmental contingencies, the higher the performance will be (Leonard-Barton, 1992).

H_3: The technology flexibility of a packaged software firm positively influences its product superiority.

MATERIALS AND METHODS

The study mainly utilized a quantitative research methodology, and the research instrument used in this study was a questionnaire with closed questions. The questionnaire was used to gain information about the characteristics and perceptions of the respondents. The respondents were top executives and senior managers who were familiar with the firm's overall focus and its managerial focus on strategic management and various aspects of software product development. Hence, this study adopted non-probability sampling, in which each member of the population did not have the same probability of selection (Malhotra, 2010). The method used in this study was judgmental sampling, in which an expert used judgment to identify representative samples (Aaker et al., 2008). Judgment sampling was used to ensure that the respondent was the appropriate person with specific knowledge regarding questions pertaining to the software product development process.

In this study, PLS is used for three reasons. First, PL-SEM works efficiently with small sample sizes and complex models, and it requires no assumptions about data distributions (Henseler et al., 2009). This study only contained 112 samples, which is considered a small sample size; however, the structural model is complex and includes four second-order constructs and thirteen first-order constructs. Additionally, PLS-SEM can easily manage reflective and formative measurement models (Hair et al., 2014). In this study, we have three reflective-reflective models (dynamic capability, technology flexibility and product superiority constructs) and one reflective-formative model (functional competences), summarized in Table 1.

Table 1

Variable definition and operationalization

Second-order variable	Operationalization	First-order variable	References
Functional Competences (FC)	A three-dimensional (16 questions) 6-point Likert scale asking top executives to agree or disagree with statements that characterize their functional competences in software product development	Customer competence (FCC) Technical competence (FCT) Managerial competence (FCM)	Pavlou and El Sawy (2006); Song and Parry (1997); Schwalbe (2013)

Table 1 *(Continued)*

Second-order variable	Operationalization	First-order variable	References
Dynamic Capability (DC)	A four-dimensional (24 questions) 6-point Likert scale asking top executives to agree or disagree with statements that characterize their dynamic capability in software product development.	Sensing capability (DCS) Learning capability (DCL) Integrating capability (DCI) Innovative capability (DCV)	Hou (2008); Ho and Tsai (2006); Lazonick and Prencipe (2005), Wu (2007); Pettus et al. (2007); Pavlou and El Sawy (2006); Pavlou and El Sawy (2011); Wang and Ahmed (2007)
Technology Flexibility (TF)	A two-dimensional (13 questions) 6-point Likert scale asking top executives to indicate high or low to statements that characterize their technological flexibility in software product development	Structural flexibility (TFS) Process flexibility (TFP)	Garud and Kotha (1994); Nelson et al. (1997); Victor (1995)
Product Superiority (PS)	A four-dimensional (23 questions) 6-point Likert scale asking top executives to indicate their firm's product superiority relative to their closest competitors.	Product technical performance (PSQ) Product applicability (PSA) Product affordability (PSF) Product potential for growth (PSG)	Cooper (1985); Haigh (2010), Westfall (2014); Zirgler and Maidique (1990)

RESULTS

The generated data were analyzed using Partial Least Squares (PLS) version 3.0. A measurement model and a structural model are required to analyze data using structural equation modeling (SEM), as suggested by Hair et al. (2014) and Henseler et al. (2009). To evaluate the adequacy of the measurement model of reflective first-order constructs, the following factors are examined: outer loading for individual indicator reliability, composite reliability (CR), average variance extracted (AVE) for convergent validity, and discriminant validity. A multi-collinearity analysis is conducted to measure the formative second-order constructs of functional competences. From the assessment of individual indicator reliability, 74 indicators (out of total 76 indicators) from the second-order construct exhibited values higher than the 0.50 threshold, as suggested in the literature (Anderson & Gerbing, 1988; Bagozzi & Yi, 1998; Gefen & Straub, 2005). Similarly, the convergent validity values for both composite reliability (CR) and average variance extracted (AVE) were all above

0.70 and 0.50, respectively, which were the thresholds suggested by Henseler et al. (2009) and Vinzi et al. (2010).

Finally, the discriminant validity of the measurement model was evaluated using the Fornell and Larcker (1981) criteria. The square roots of the AVE should be greater than those related to other constructs. As shown in Table 2, the square root of the AVE of each indicator is the highest value in each row. This finding indicates that the indicator of each variable is more related to its original theoretical construct and that discriminant validity was established (Hair et al., 2014).

To assess the collinearity of the formative constructs, we obtained the variance inflation factors (VIFs). We assessed the functional competences, dynamic capability, and technology flexibility as predictors of product superiority. The results in Table 3 show that all the VIF values are below the suggested threshold level of 5. Therefore, collinearity among the predictor constructs is not an issue in the structural model. Table 4 presents the results of hypothesis testing while the path analysis is summarized in Figure 1.

Table 2

Discriminant validity

	DCI	DCL	DCS	PSA	PSF	PSG	PSQ	TFP	TFS
DCI	0.791								
DCL	0.511	0.824							
DCS	0.628	0.575	0.775						
PSA	0.588	0.517	0.609	0.837					
PSF	0.417	0.434	0.464	0.607	0.721				
PSG	0.533	0.545	0.422	0.635	0.510	0.721			
PSQ	0.544	0.547	0.493	0.693	0.479	0.519	0.744		
TFP	0.540	0.559	0.580	0.592	0.445	0.427	0.556	0.787	
TFS	0.481	0.537	0.369	0.366	0.427	0.519	0.426	0.481	0.816

Table 3

Collinearity assessment

Constructs	VIF
Functional competencies (FC)	2.549
Dynamic Capability (DC)	2.599
Technology Flexibility (TF)	2.509

Table 4

Summary of findings

Hypothesis	Path	Path coefficient	T statistics	P values	Decision
H1	Functional Competencies -> Product Superiority	0,121	1,051	0.147	Rejected
H2	Dynamic Capability -> Product Superiority	0,482	5,042	0.000	Accepted
H3	Technology Flexibility -> Product Superiority	0,232	2,462	0.007	Accepted

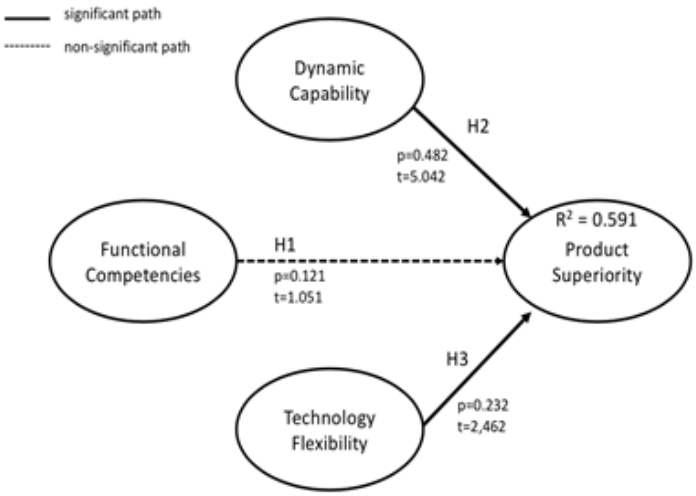

Figure 1. Structural model

The results provide an empirical justification that among the three capabilities, only dynamic capability and technology flexibility have a significant and positive relationship with product superiority. H_2 was accepted with a coefficient value of 0.482 and a t-value of 5.042 at the significance level of 1% (p-value = 0.000). H_3 was also accepted; the results showed a coefficient value of 0.232 and a t-value of 2.462 at the significance level of 5% (p-value = 0.007). The structural model provides a justification for the postulated hypotheses in this study. In particular, the structural model aimed to assess the hypotheses using R-squared values. The study has an R-squared value of 59%, which indicates how well the exogenous constructs explain the endogenous construct. The value of 0.591 (59%) can be categorized as moderate according to Chin (1998).

DISCUSSIONS

The first hypothesis was built from the new product development literature that software product development functional competencies are capable of building technically superior products that better meet customer needs (Song & Parry, 1997). However, when observed with dynamic capability and technology flexibility, the relationship between functional competencies and product superiority is found to be insignificant. The functional competences are not considered as a determining factor in crafting firm's product superiority. In other words, software product development functional competence alone does not directly affect to product superiority.

The differences in user/developer relations between packaged software developer and custom software developer is manifested in how the products from these two domains are implemented. Custom software developers are concerned with implementation – the roll-out, user acceptance while implementation stands separate from the work of packaged software developers. Most packaged software developers leave the implementation support to systems integrators or for more complex products to third-party consultants. Thus, further emphasizes the role of intermediaries in this situation and hence the functional competencies revealed to be less relevant in this study.

This rejected hypothesis confirms that higher order capabilities have more significance influence to product superiority (Danneels, 2002) in a volatile industry where software industry operates in. In this study, the higher order capabilities are dynamic capability and technology flexibility that are the dominant drivers of product superiority. Dynamic capability improves speed, effectiveness and efficiency in software product development process (Hitt et al., 1998) with respect to dealing with environmental changes. Therefore, a firm will be able to focus on delivering the expected features with accepted quality. Technology flexibility is the ability of a firm to cope with changes by establishing inherent flexibility of the resources available to a firm and a firm's flexibility in applying those resources to accommodate changes (Sanchez, 1995).

The findings support the existing literature such that dynamic capability and technology flexibility are different from operational capabilities. The patterned nature of both dynamic capability and technology flexibility is intentional, whereas functional capabilities constitute day-to-day organizational activities and lack intent (Dosi et al., 2000). Among the three dimensions forming the functional competencies, the technical and customer competencies are less relevant. This evidence supports a study by Li et al. (2010), who suggested that high managerial capability increased software firm survival more than high customer competence and technical capabilities. The importance of managerial excellence was also highlighted by McFarland (2008), who surveyed successful entrepreneurs and found that only 12% associated their

success with an extraordinary idea. The others related their success to the execution of an ordinary idea.

The results of this study provide managerial implications that can be directed to software package developers or technology-based industries in general. The study contributes to managerial practice by proposing a model of capabilities that can provide valuable insights in crafting product superiority. In addition, when operating in a highly competitive and dynamic environment with rapidly evolving technologies and increasing demands for faster delivery speed, better capabilities and high-quality solutions, firms need to build their capabilities to cope with these pressures and add value to ensure the firm's survival.

CONCLUSIONS

This study intended to integrate three capabilities to examine the relationships among them. However, the study has some limitations. First, this study focused on software product development functional competence, software product development dynamic capability and firms' capability to establish technology flexibility. However, there may be other capabilities that are relevant to crafting product superiority, such as agility, strategic alliances and reputation (Holsapple &Singh, 2001). Second, the results of this study were based on data from software development companies, and it focused only on packaged software development firms. The limitation of analyzing a single industry is that the empirical findings may not be generalizable to other industries.

Future research could include studies that attempt to generalize our findings in different industries that have similar characteristics to the software industry, which is knowledge intensive and has a high level of uncertainty. Further investigations are recommended to combine flexibility and agility in coping with unpredictable changes in market or customer demands. Previous research by Wadhawa and Rao (2003) argued that the major distinction between flexibility and agility was the degree of change required to respond to the situation. Flexibility focus on responses to known situations, and procedures are already in place to manage such changes. In contrast, agility incorporates the ability to manage the unpredictable change in an innovative manner. Thus, it is important to use both flexibility and agility concepts where flexibility becomes a platform to increase the system agility.

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Antecedents of Donation Intention in the Indonesian Islamic Philanthropy Organization: The Role of Social Media

Syahrina Mazaya and Sri Rahayu Hijrah Hati*

Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

To date, very little research has examined the role of social media in influencing donors' donation intention in Islamic philanthropy organizations, which are currently growing in number. The purpose of this research is to examine how user interactions and word-of-mouth on an Islamic philanthropy organization's social media affect the conception of brands and influence its social media followers' donation intention. The research was conducted in one of the largest Islamic philanthropy organizations in Indonesia. Data were collected using purposive sampling. Survey questionnaires were sent to Islamic philanthropic social media followers via Instagram, Facebook, and Twitter. Structural equation modeling was applied in the analysis. An online survey given to 200 social media followers found that annoyance with the brand page due to information overload led to negative effects on social media brand page commitment and decreased word-of-mouth activities. Regarding donation intention, the study found that brand page commitment was the only variable that significantly influenced donation intention. Annoyance, word-of-mouth, and brand awareness did not significantly influence donation intention. The results of this study contribute to understanding the role of social media in influencing a donor's brand-related attitude, word-of-mouth, and intention to donate to Islamic philanthropy organizations.

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E-mail addresses:
syahrina.mazaya@gmail.com (Syahrina Mazaya)
sri.rahayu72@ui.ac.id (Sri Rahayu Hijrah Hati)
*Corresponding author

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INTRODUCTION

Social media have dramatically altered the means of communication and had a significant effect on marketing communications (Neti, 2011). The rapid development of communication cannot be separated from the importance of social media like Facebook, YouTube, Twitter, and other sites, which exert a significant influence on how we communicate (Ruehl & Ingenhoff, 2015). As consumers increase the time they spend on social media, more strategies of communication can be used within social networks. In the marketing communications context, this phenomenon indicates that, today, the interaction and exposure of a brand to the promotion of marketing occur more in social media (Laroche et al., 2013). Social media marketing has led consumers, who previously were passive participants in marketing, to become active influencers (Kozinets et al., 2010; Merz et al., 2009). Social media have also strengthened the direct influence of a brand to consumers (Constantinides & Fountain, 2008). Indeed, social media have turned traditional unidirectional communication in marketing into a multidirectionalth communication realm (Hanna et al., 2011).

Despite its strengths, communication through social media contains some weaknesses. Annoyance and negative word-of-mouth due to information overload may interfere with the communication process (Hutter et al., 2013). However, as brands cannot afford to risk not following the development of social media communication, which is influential in digital marketing, companies still invest in their social media activities despite the risks and doubts (Hutter et al., 2013).

Realizing the power of social media, for-profit and nonprofit organizations have utilized the platforms in their communication to increase customers' purchase intention and to attract donor donation intention (Attouni & Mustaffa, 2014). Nonprofit organizations typically use social media, which enable them to manage their relationship with the community (Curtis et al., 2010; Wallace et al., 2017). Social media have also been applied by the majority of nonprofit or philanthropy organizations in Indonesia, including Islamic philanthropy organizations. This type of philanthropy is growing in Indonesia, as Islam, as the most followed religion in the country, provides a strong basis for philanthropic activities, as suggested in the Quran (the Islamic sacred book) and Hadits (the words, actions, or habits of the Islamic prophet Muhammad) (Ismail et al., 2013). Based on the Charities Aids Foundation World Giving Index Report (2014), Indonesia is among the top 10 most generous nations (Sdgphilantrhrophy.org, 2017). The report also showed that 66% of its population, or 117 million Indonesians, have donated to charity (Sdgphilantrhrophy.org, 2017).

To date, many studies have been conducted on the utilization of online media, but only a few have examined the utilization of social media in the context of charity or donation (Wallace et al., 2017). A study conducted in Morocco showed

that the internet had a substantial impact on the Islamic social movements, especially Islamic charitable organizations (Moussa, 2011). However, Moussa (2011) did not specifically examine the role of social media in influencing donation intention although the rapid growth of Islamic philanthropic organizations that utilized social media to attract followers had raised a question on the role of social media in those institutions. Therefore, this study aims to investigate how social media activities affect brand page commitment, brand awareness, word-of-mouth, and donation intention in Islamic philanthropy organizations.

The paper is divided into six sections. First is the introduction, which discusses the background and aims of the study. The second section features a literature review, which elaborates on previous studies, and the hypotheses development. The second section is followed by a description of the research method, including sampling, measurement, and data collection issues. The fourth section provides the statistical analysis results. The fifth section relates the results of the study to the literature review. Last, the researchers present the findings and discuss the limitations and future research directions.

Literature Review

Why Replicate Hutter et al. (2013)? The idea of replication or repetition is strongly connected with the postulation that nature behaves lawfully (Dilworth, 1994). Replication has the function of establishing stability and objectivity in our knowledge of nature (Radder, 1996). Replication studies that use a different sample, different stimuli, methods, procedures, different situations, and various analytical techniques on different occasions serve to advance knowledge of consumer behavior (Rosenthal, 1990). Theoretically, the two types of replications are direct replication, which refers to the narrow kind of replication or repetition of an experimental procedure, and repetition of a test of a hypothesis or a result of earlier research work with different methods (Schmidt, 2009). The replication reported in this paper employs the same models and hypotheses as Hutter et al. (2013) but uses a different context, that is, the nonprofit research setting.

Annoyance and Brand Page Commitment. Today's marketers have created and used social media platforms as media of communication (Schultz & Peltier, 2013). However, some studies reveal a consumer engagement issue in social media marketing (Barger et al., 2016). Social media have only a small influence on the creation of consumer-brand engagement (Barger et al., 2016). This problem might occur due to information overload, which is considered an annoyance by customers (Keller, 2001). The communication from the company through social media turns into annoyance when the consumers recognize it as unwanted advertising (McCoy et al., 2007).

Disturbing social media content, which ultimately frustrates consumers, is not only unproductive from a marketing standpoint

but can even hurt the brand (Hutter et al., 2013). In marketing communication through the social media context, the brand-related variable, which is influenced by the presence of annoyance, is brand page commitment (Hutter et al., 2013). Brand page commitment refers to the active and psychological attachment of consumers to the social media activities of a brand (Kim et al., 2008; Morgan & Hunt, 1994). Even though consumers sometimes only notice marketing communication when it annoys them, they typically prefer marketing communication that engages them (Kelly et al., 2010). Based on the above explanation, the following hypothesis is proposed:

H1: Annoyance with the content of a brand page has a negative impact on donors' brand page commitment.

Brand Page Commitment, Annoyance, and Brand Awareness. Social media activity enables co-value creation activities between producers and consumers, for example, through the social media brand community (Shao & Ross, 2015). The utilization of a brand community through social media helps marketers create strong impressions of a brand in the social realm (Shao & Ross, 2015). The existence of brand pages on every social media outlet with masses of followers and members demonstrates that brands are not the only crashers of social media but that people have affectionately embraced the brand (Habibi et al., 2014).

Brand awareness indicates the existence of a brand in a consumer's memory and therefore signifies how well a consumer will memorize or recognize that brand (Rossiter & Percy, 1987). The more a person's activity interacts with a brand's social media account, the higher the brand page commitment and the higher the company's brand awareness (Hutter et al., 2013).

According to brand communication specialists, a marketer cannot underestimate negative advertising as negativity may grab the audiences' attention as it creates more brain activity than positive advertising (Denari, 2014). However, intrusive communication which annoys the customer via social media does not align with the value expectation of the consumer and works against the firm's strategic goal, especially in the development of a relationship with customers (Mandelli, 2005). Despite its ability to produce more brain activity than positive marketing communication, a high level of intrusiveness or annoyance in the marketing communication leads to negative brand awareness in the minds of customers (Hutter et al., 2013). Annoying viral marketing, for example, contributes to a more negative perception of the brand (Phelps et al., 2004). The effect of annoyance on brand awareness is negative as the concept of brand awareness itself refers to the favorable or positive attitude toward the brand that presents before the purchase activity (brand recalled) and at a point of purchase (brand recognition) (Percy & Rossiter, 1992). Therefore:

H2a: Brand page commitment has a positive impact on donors' brand awareness.

H2b: Annoyance with the content of a brand page has a negative impact on donors' brand awareness.

Brand Page Commitment, Annoyance, Brand Awareness, and Word-of-Mouth.

Online and social media environments have seen the development of consumer-to-consumer and consumer-brand communications (VanMeter et al., 2015). Social media accommodate the discussion and exchange of brand-related information between consumer and consumer (Pasternak et al., 2017). Therefore, social media may generate a substantial amount of information created beyond companies' control and influence (Pasternak et al., 2017).

Noncommercial communication between consumers about the company, product, and brand is called "word-of-mouth" (Goyette et al., 2010). Word-of-mouth communication about a company, product, or brand itself can be positive or negative (Liu, 2001). One of the facilitating platforms for word-of-mouth is a brand page (Kim et al., 2014). To avoid negative word-of-mouth, marketers typically invest a significant amount of resources to increase positive word-of-mouth on social media by setting up brand profile pages and engaging consumers to make friends with the brand. Unfortunately, if customers perceive the social media communication as an annoyance, the impact of the brand page on the customers' word-of-mouth activities is typically negative (Hutter et al., 2013).

Contrasting word-of-mouth activities can be performed by customers who are classified as brand evangelists or loyalists. When consumers are loyal to a brand, they tend to spread positive word-of-mouth (Fueller et al., 2012; Hutter et al., 2013). Therefore,

H3a: Brand page commitment has a positive impact on donors' positive word-of-mouth activities.

H3b: Annoyance with the content of a brand page has a negative impact on donors' positive word-of-mouth activities.

H3c: Brand awareness has a positive impact on donors' positive word-of-mouth activities.

Brand Page Commitment, Annoyance, Brand Awareness, Word-of-Mouth, and Intention. Social media drive buyers to have a greater impact on products and brands they consider buying (Riegner, 2007). Hutter et al. (2013) found that social media brand page commitment had a positive impact on customers' purchase intention. Previous research in the nonprofit setting found that donation for a disaster could be predicted through donors' social media activities (Korolov et al., 2016).

Hutter et al. (2013) also found a positive influence of brand awareness on customers' purchase intention, which was similar to brand page commitment. The results demonstrated that social media content affects the economic consequence of brands (Zhu & Zhang, 2010). Based on a study of organ donations, social media can be employed as an instrument to heighten organ donation awareness and population engagement in a donation (Pacheco et al., 2017).

Regarding word-of-mouth, an empirical study in an online bookstore setting shows that a positive online review from customers

has a positive influence on book sales at a website (Chevalier & Mayzlin, 2006). A similar result was found in a study conducted in the textile industry; the result showed that a positive review had a positive impact on potential customers' purchase intention (Essani et al., 2017). In the context of donation, word-of-mouth by actual blood donors has a positive impact on the acquisition of new donors (Tscheulin & Lindenmeier, 2005). Therefore,

H4a: Brand page commitment has a positive impact on donors' donation intention.

H4b: Annoyance with the content of a brand page has a negative impact on donors' donation intention.

H4: Brand awareness has a positive impact on donors' donation intention.

H4d: Word-of-mouth has a positive impact on donation intention.

Based on the above hypotheses, the research framework shown in Figure 1 is developed:

MATERIALS AND METHODS

Data Collection and Sampling

To test the hypotheses, a quantitative study was carried out in cooperation with one of largest Islamic humanitarian organizations that collected for Islamic charities such as Zakat, Infak, Shadaqah, and Awqaf (ZISA) in Indonesia: Aksi Cepat Tanggap (ACT) or Let's Act Indonesia. The organization aims to provide solutions for humanitarian issues in Indonesia and all over the world through various programs such as Let's Help Rohingya, Let's Save Palestine, Let's Help Syria, and Winter Aid. Let's Act Indonesia partners with 82 nonprofit organizations and 137 for-profit organizations. The organization has channeled donations from 254,992 donors to 32,674,640 beneficiaries in 43 countries. The organization was chosen as the object of study because, regarding social media followers, Let's Act Indonesia had 161,000 Instagram followers, 365,910 Twitter followers, and 1,152,396 platform name followers.

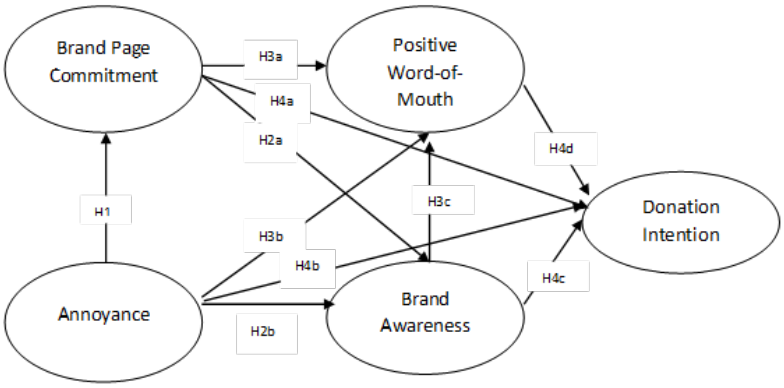

Figure 1. Research framework

Nonprobability sampling using a purposive sampling approach was applied in the study. Let's Act Indonesia sent the study's survey questionnaire to its donors through its social media accounts (e.g., Instagram, Facebook, Twitter). The survey link was closed after the total number of samples reached 200 respondents. The minimum number of samples was set to 200 to follow the rule of thumb for sample size using structural equation modeling of 5 or 10 observations per estimated parameter (Bentler & Chou, 1987).

Measurement

Existing scales were used and adapted to an Islamic nonprofit context (Table 1). The multidimensional constructs used 5-point Likert-type scales, ranging from 1 (totally disagree) to 5 (totally agree). Brand page commitment was measured using four adapted items (Ellison et al., 2007; Kim et al., 2008), capturing the extent to which a participant was actively engaged and connected emotionally with activity on the Let's Act Indonesia's social media page. Word-of-mouth was captured by four slightly adjusted items (Hennig-Thurau et al., 2004). Brand awareness was measured using three items also adapted from a previous study (Yoo et al., 2000). Annoyance and intention to donate variables were measured using three items adapted t from Hutter et al. (2013).

The final questionnaire was divided into six parts that covered all five variables (annoyance, brand page commitment, brand awareness, word-of-mouth, and donation intention) and demographic variables (gender, age, education, occupation, and income). Two screening questions were included in the study to ensure that only respondents who had followed the ACT social media but not donated to ACT answered the questionnaire.

Structural equation modeling (SEM) was used to test all the hypotheses of the study. SEM was chosen as it provides researchers with greater flexibility to test *a priori* a substantive/theoretical model and measurement assumptions against empirical data (Chin, 1998). The validity and reliability of the instruments were also assessed based on SEM output. The SEM measurement

Table 1

Validity and reliability of measurements

Construct	Item	Loading	Mean	CR	AVE
Annoyance	I think it is disturbing if…			0.96	0.81
	I feel annoyed when my social media timeline is filled with updates from LAC accounts.	0.80	1.85		
	I feel annoyed when LAC updates the same topic over and over in social media.	0.93	2.22		
	I feel annoyed when LAC uploads ads about its programs and activities repeatedly.	0.96	2.13		

Table 1 *(Continued)*

Construct	Item	Loading	Mean	CR	AVE
Brand Page Commitment	As a follower of LAC's social media accounts…			0.84	0.57
	I often read news or status updates from LAC's social media accounts.	0.79	4.16		
	Seeing an update on LAC's social media, I feel part of LAC.	0.80	4.08		
	I often interact with content uploaded to LAC's social media.	0.76	3.62		
	I feel like a laggard on humanity issues if I do not see updates on LAC's social media.	0.65	3.83		
Word-of-Mouth	Because I'm a follower of LAC's social media accounts…			0.93	0.77
	I say positive things about LAC to others.	0.84	3.99		
	I recommend LAC to others, my friends, and family.	0.93	3.98		
	I try to invite other people, friends, and family to follow LAC's social media.	0.93	3.79		
	I am happy to share and do share information about LAC and its activities and programs.	0.93	3.84		
Brand Awareness	Because I'm a follower of LAC's social media accounts…			0.88	0.56
	I have no trouble remembering what LAC is.	0.43	4.43		
	I know all the programs and activities of LAC.	0.88	3.30		
	I can explain all the programs and activities of LAC.	0.85	3.12		
Intention to Donate	Because I'm a follower of LAC's social media accounts…			0.89	0.59
	I decided to donate through LAC after seeing an update or status of LAC social media.	0.60	4.25		
	In the future, when I want to donate, LAC becomes the first choice of my donation goal.	0.78	4.09		
	I plan to donate again to LAC.	0.90	4.29		

Note: LAC is Let's Act Indonesia, the Islamic philanthropy organization chosen as the object of the study

model was evaluated to measure the internal consistency and reliability of the applied constructs. The validity and reliability score of the latent constructs and the wording of the items, as displayed in Table 1, indicate an appropriate structure. All indicators have good factor loadings, and the respective factor reliabilities exceed the required reliability in SEM of 0.6 (Bagozzi, 1975). The average variances extracted from the constructs are satisfactory, with values over 0.5, except for purchase intention, which is still tolerable at 0.46. Thus, the constructs have good convergent validity (Hair et al., 2010).

RESULTS

Two hundred social media followers who had not donated to ACT returned completed and usable responses; 61% of the participants were male (65%). The demographic characteristics of the sample also indicated younger respondents (21–30 years old = 51.5%). The majority of participants reported a monthly income of less than 3.5 million rupiahs (IDR). The profile of respondents is presented in Table 2 below.

As previously mentioned, SEM was applied with LISREL 8.70 to test the model. To evaluate the overall causal model, multiple fit indexes were observed. First is the normed chi-square, which reduces the effect of the sample size on the model chi-square. Even though there is no consensus regarding an acceptable ratio for this

Table 2

Demographic profile of respondents

Variable		Frequency	Percentage
Gender	Male	130	65%
	Female	70	35%
	Total	200	100%
Age	< 21 years old	26	13
	21–30 years old	103	51.5
	31–40 years old	53	26.5
	41–50 years old	15	7.5
	51–60 years old	3	1.5
	Total	200	100%
Education	≤ Senior high	87	42.5%
	Diploma	23	11.5%
	Bachelor degree	77	38.5%
	Postgraduate degree	13	6.5%
	Total	200	100%

Table 2 *(Continued)*

Variable		Frequency	Percentage
Occupation	Student	122	61%
	Private employee	35	17.5%
	Entrepreneur	17	8.50%
	Government employee	4	2%
	Homemaker	20	10%
	Unemployed	2	1%
	Total	200	100%
Income	< IDR 3.5 million	154	77%
	IDR 3.5–7 million	28	14%
	>IDR 10.5 million	18	9%
	Total	200	100%

statistic, recommendations range from 2.0 to 5.0 (Hooper et al., 2008). The normed chi-square of the current study is 2.14 (339/158), which reflects an acceptable fit statistic.

The second fit index used in the study is a root mean square error of approximation (RMSEA). RMSEA is currently regarded as one of the most informative fit indexes because it is much more sensitive to the number of estimated parameters in the model (Diamantopoulos & Siguaw, 2000). The RMSEA of the current study is 0.075 and the RMSEA of this model is 0.070, which indicates a reasonable fit of the tested model to the observed data.

The third index used in the current study is the Tucker-Lewis index (TLI) or non-normed fit index (NNFI). The minimum fit index for TLI or NNFI is ≥ 0.95. The NNFI of the present study is 0.96, which is greater than the threshold statistic. To test the hypotheses, an alpha of 0.05 was used. Therefore, if the *t*-value is lower than 1.64, then the null hypothesis was rejected.

The structural model results are presented in Figure 2, while Table 2 summarizes the findings. As shown, annoyance is significantly and negatively related to brand page commitment (β = -0.28; *t*-value = -3.11 ≥ 1.64), in support of Hypothesis *H1*

Brand page commitment is significantly related to brand awareness (β = -0.60; *t*-value = 4.780 ≥ 1.64), in support of Hypothesis *H2a*. In contrast, annoyance is not significantly related to brand awareness (β = -0.01; *t*-value = -0.18 ≤ 1.64). Thus, H2b is not supported.

Strong support was found for the effects of brand page commitment on donors' word-of-mouth activities (β = 0.60; *t*-value = 4,780 ≥ 1.64), which supports *H3a*. However, the effects of annoyance on donors' word-of-mouth activities are

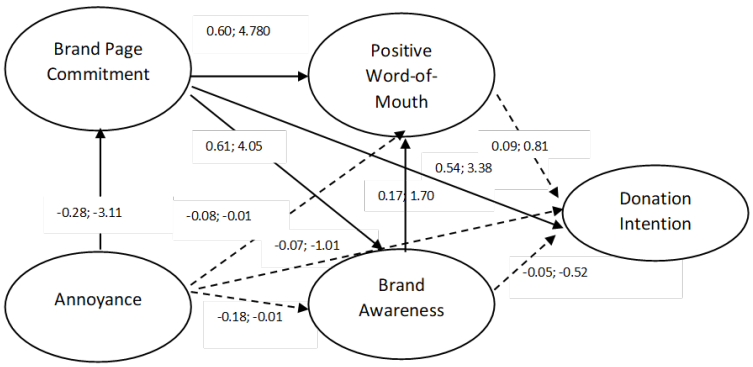

Figure 2. Structural model

not significant (β = -0.01; *t*-value = -0.08 ≤ 1.64). Therefore, Hypothesis *H3b* is not supported. As predicted by *H3c*, the effects of brand awareness on donors' word-of-mouth activities are positive (β = -0.17; *t*-value = 1.70 ≥ 1.64).

The antecedents of donors' donation intention are hypothesized in *H4a*, *H4b*, *H4c*, and *H4d*. Only *H4a*, which tested the effects of brand page commitment on donors' donation intention (β = 0.54; *t*-value = 3.38 ≥ 1.64), found support. The effects of annoyance on donors' donation intention are not supported (β = -0.07; *t*-value = -1.01 ≤ 1.64). The effects of brand awareness on donors' donation intention are also not supported (β = -0.05; *t*-value = -0.52 ≤ 1.64). The effects of word-of-mouth on donors' donation intention are not supported; donors' donation intention is also not supported (β = -0.09; *t*-value = 0.81 ≤ 1.64). Therefore, *H4b*, *H4c*, and *H4d* are all not supported. The above hypotheses testing results are summarized in Table 3.

Table 3

Summary of hypothesis testing

Hypothesis	Relationship	β	*t*-value	Conclusion
H_1	Annoyance → brand page commitment	-0.28	-3.11	Supported
H_{2a}	Brand page commitment → brand awareness	0.61	4.05	Supported
H_{2b}	Annoyance → brand awareness	-0.01	-0.18	Not Supported
H_{3a}	Brand page commitment → positive word-of-mouth	0.60	4.78	Supported
H_{3b}	Annoyance → positive word-of-mouth	-0.01	-0.08	Not Supported

Table 3 *(Continued)*

Hypothesis	Relationship	β	*t*-value	Conclusion
H_{3c}	Brand awareness → positive word-of-mouth	0.17	1.70	Supported
H_{4a}	Brand page commitment → donation intention	0.54	3.38	Supported
H_{4b}	Annoyance → donation intention	-0.07	-1.01	Not Supported
H_{4c}	Brand awareness → donation intention	-0.05	-0.52	Not Supported
H_{4d}	Word-of-mouth → donation intention	0.09	0.81	Not Supported

DISCUSSIONS

Social media have transformed the traditional model of marketing communication into interactive marketing where consumers are simultaneously the initiators and recipients of information exchanges (Hanna et al., 2011). However, too-aggressive communication from a marketer can lead to annoyance or feelings of intrusiveness, which, in turn, influence the consumers' engagement (Kelly et al., 2010). To date, there is a dearth of research into the utilization of social media in the nonprofit research context, especially in Islamic philanthropy organizations. Our purpose was to fill this gap and to shed light on these issues.

This study replicated the study of Hutter et al. (2013), which was assigned to a different setting (i.e., an Islamic nonprofit organization). The results of this study partially support Hutter et al. (2013), which shown that annoyance with social media content had negative effects on brand page commitment. However, this study shows that annoyance does not significantly reduce word-of-mouth, brand awareness, or intention to donate. The results support the previous study, which indicates that a high number of the dissatisfied customers forego the chance to articulate their annoyance to the firm (Goodman et al., 2000). The insignificant annoyance on word-of-mouth, brand awareness, and intention to donate might also indicate that the level of annoyance on the social media of the Islamic philanthropy organization is moderately low as, based on the mean calculation, the average level of brand annoyance is 3.30 out of 5.00. The previous study shows that the consumer's intention to take action, such as complain and engage in negative word-of-mouth or take no action at all, depends on the intensity of dissatisfaction (Johnston, 1998). Also, the intensity of dissatisfaction influences the number of actions and the number of people told about the dissatisfying incident (Johnston, 1998).

The results of this study also indicate that engagement with donors via social media such as Facebook, Instagram, and Twitter has positive effects on brand awareness, word-of-mouth, and donors' donation intention. This finding is consistent with Hutter et al. (2013). The brand page

has the potential to generate positive brand awareness because the brand page of the philanthropic organization on social media provides relevant information related to the organization's activities.

Despite the positive influence of brand page commitment on brand awareness, the current study shows that brand awareness has no direct impact on donors' donation intention. In other words, no indirect economic outcome of social media on donation intention via brand awareness was found, consistent with previous studies (Hutter et al., 2013; Zhu & Zhang, 2010). As the study shows the direct effect of brand page commitment on donation intention, the research indicates that in the context of donation via a social media platform, the social media platform which is represented by brand page commitment has a direct impact on donation intention, a findings that supports Hutter et al. (2013). The results reflect that consumers' active and psychological engagement with the social media activities of an Islamic philanthropic organization generates positive donation intentions.

Although brand page commitment has a positive impact on word-of-mouth, word-of-mouth itself has no direct influence on donation intention. The study aligns with Hutter et al. (2013) but does not align with studies conducted in the nonprofit context or charitable action (Chevalier & Mayzlin, 2006; Essani et al., 2017; Tscheulin & Lindenmeier, 2005). The previous research shows that the valence of word-of-mouth influences the impact of word-of-mouth on intention (Davidow, 2003). Therefore, the insignificant influence of word-of-mouth on donation intention may indicate that the valence of donors' word-of-mouth is low.

CONCLUSIONS

An interesting observation from the current study is that social media activities, which are represented by brand page commitment on Facebook, Instagram, and Twitter, become the only variable that significantly and directly influences a donor's donation intention. This study shows that annoyance has a significant influence on brand page commitment only. Annoyance has no significant impacts on brand awareness, word-of-mouth, or donation intention. The insignificance of brand annoyance on brand awareness, word-of-mouth, and donation intention shows the potential effect of annoyance intensity on those variables. Thus, the annoyance intensity effects on the relationships among brand awareness, word-of-mouth, and donation intention should be examined in a future study. From a theoretical point of view, the results of this study provide empirical evidence of the social media (Facebook, Twitter, YouTube, and Instagram) influences on donors' donation intention in a new context, that is, the Islamic philanthropy organization. This study also provides a significant practical contribution to the Islamic philanthropy sector development by showing the importance of social media to attract donors' intention. From a managerial perspective, the study indicates the importance of brand page presence on

social media such as Facebook, Instagram, and Twitter to generate positive word-of-mouth, create brand awareness, and attract donors' donation intention. However, the negative influence of annoyance on donors' brand page commitment suggests that the nonprofit organization should avoid excessive activity of posting repetitive information on the philanthropy organization social media account, as doing so will create annoyance. Repetitive information on an Islamic philanthropy organization's social media will reduce its donors' brand page commitment and may force donors to abandon the Islamic philanthropy organization's brand page. The manager of the Islamic philanthropy organization should not worry about the negative impact of annoyance on word-of-mouth, brand awareness, or donors' donation intention, as the impact of the annoyance on those three variables is not significant.

Implications and Future Directions

Although this study shows that the influence of brand page commitment on word-of-mouth and brand awareness is positive and significant, the insignificant impact of both variables in attracting donors' donation intentions indicates the potential presence of other mediating or moderating variables between the word-of-mouth and donation intention relationship (e.g., valence of word-of-mouth) and between the brand awareness and donation intention relationship (e.g., perceived quality and brand loyalty). Therefore, future researchers can include additional moderating or mediating variables that potentially affect the relationship between word-of-mouth or brand awareness and donation intention.

The current study only used one Islamic philanthropy organization as the object of study, which might limit the generalization of the results. It is recommended that future researchers compare the attitudes and intention of donors from multiple Islamic philanthropy organizations.

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Top Management Team (TMT) Characteristics and Profitability: The Case of the Conflicting Objectives of Indonesian SOEs

Primatazya Putri and Hilda Rossieta*

Department of Accounting, Faculty of Economic and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

This research aims to analyse the effects of Top Management Team (TMT; i.e., Board of Commissioners/BOC and Board of Directors/BOD) characteristics on the profitability of Indonesian State Owned Enterprises (SOEs). The analysis is of interest considering that the dual and conflicting commercial objectives and social obligations of Indonesian SOEs differ from non-SOE companies, which mostly only have the single objective of achieving sound financial performance. The research used stacked unbalanced panel data of 55 SOEs during the period 2010 to 2014, resulting in 175 firm-year observations, which were tested using E-views 10 statistical software. In general, most BOC characteristics are associated with the bottom line Net Profit Margin (NPM) and less associated with SOEs core competence indicated by Operating Profit Margin (OPM). The result is consistent with the main interest of the State as owner to gain high dividend value, as well as the TMT's interest in terms of bonuses. On the other hand, BOD characteristics have more balanced associations with both the State and TMT interests, as well as with SOE core competences. Importantly, the research provides empirical evidence for the effect of TMT characteristics in the unique setting of Indonesian SOEs. Accordingly, the effect of TMT characteristics on profitability, to some extent, can be explained by the underlying dual objectives of Indonesian SOEs.

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E-mail addresses:
primatazya@gmail.com (Primatazya Putri)
enjum9@gmail.com (Hilda Rossieta)
*Corresponding author

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INTRODUCTION

McKinsey and Co's survey finds that good corporate governance (hereafter referred to as GCG) is among the important factors that concern shareholders (Organisation for Economic Co-operation and Development [OECD], 2004). One of the important aspects of GCG is related to the company board. Indonesia adopts a two tier board system, which consists of the Board of Directors (BOD), which performs executive functions, and the Board of Commissioners (BOC) that has an oversight function. Bhagat and Black (1999) argued that the BOD comprised people who had expertise and knowledge of company operations and knew exactly what was going on inside the company, while the BOC was believed to play an important role in supervising the BOD (Fama & Jensen, 1983). Hence, the BOC and BOD form a team which has the common goals of achieving high firm value benefits for shareholders.

SOE importance is growing in the context of both the global and Indonesian economy. Statistics from Fortune Global 500 show that during the period 2005 to 2014 the proportion of SOEs increased from 9% to 23% globally (Price Waterhouse [PWC], 2015). In Indonesia, 40% of state GDP is contributed by SOEs, which employed 781, 760 people in 2014. On the Indonesian Stock Exchange, SOEs also play an important role, with 26.41% of market capitalisation attributed to 20 listed SOEs (U.S Department of Commerce's International Trade Administration, 2017).

The important role of SOEs in the Indonesian economy, together with the essential role of the Board in implementing GCG and achieving high firm value, are the motivation for this research. The study aims to examine the impact of TMT characteristics of Indonesian SOEs on companies' financial performance. Most previous studies regarding the effect of TMT characteristics on company performance have addressed listed companies (Chapple & Humphrey, 2013; Dewi & Dewi, 2016; Darmadi, 2011a, 2011b; Hardikasari, 2011; Low et al., 2015; Liu et al., 2014; Toyyibah, 2012; Wellalage & Locke, 2012), and more specifically the issue of agency problems between the TMT and diverse shareholders. Accordingly, an information asymmetry problem allows the TMT to make decisions which are beneficial for them, at the cost of shareholders' interest; namely, profitability or firm value.

However, article 33 paragraph 3 of the 1945 Indonesian Constitution (Asian Human Right Commission, 2016) states that "*The land, the waters and the natural resources within shall be under the powers of the State and shall be used to the greatest benefit of the people*". This means that besides commercial objectives, the State, as the dominant and controlling owner, has the social obligation to optimise public welfare, which is often contradictory to commercial objectives. Hence, hypothetically, the TMT characteristics of Indonesian SOEs will have a unique effect on commercial objectives, considering that non-SOE TMTs do not

have to face the dilemmatic issues faced by those of SOEs.

The research contributes to the TMT literature related to Indonesian SOEs. Previous studies on TMT have focused more on non-SOE companies, which mostly have one single objective, to optimise financial performance. By establishing the TMT characteristics associated with SOE profitability, the study will increase understanding of their effect on firms with dual and conflicting objectives, such as SOEs. This better understanding will be useful for TMT appointments in Indonesian SOEs in which the main objective is profitability, but social obligations cannot be ignored.

Theoretical Foundation

Good Corporate Governance. The Indonesian Institute for Corporate Governance (Indonesian Institute for Corporate Governance, 2000) defines corporate governance as a system, structure and process used by companies to achieve long term sustainable value in addition to considering stakeholders' interests based on the prevailing norms, ethics, culture and rules. Accordingly, stakeholders' interest is the main factor that determines companies' decisions on what value added is created, and in what way. Hence, TMT decision making should be bounded by stakeholders' interest; otherwise, their decisions will not be considered as valuable.

However, stakeholders' interests vary and sometimes conflict. Often, domination of certain stakeholders' elements influences TMT decisions to pursue particular objectives. For example, shareholders often dominate TMT decision-making in order to pursue commercial objectives, namely firm value. In contrast, SOEs commonly have dual and conflicting commercial and social orientation objectives (Sappington & Sidak, 2009). Consequently, achieving high firm value is not always the primary consideration of TMT decision-making. Therefore, although this study does not intend to make a comparison between TMT characteristics in SOEs and non-SOEs companies, the contrasting objectives of the two types of company will hypothetically lead to a unique effect of these characteristics on SOEs financial performance, in different ways to their effect on non-SOEs financial performance.

Resource Dependence Theory. Resource Dependence theory (hereafter referred to as RD theory) explains that a company is dependent on the board members to manage its resources and achieve high performance. The theory views the board as an important information tool and strategic resource for the company (Dalton et al., 1999). Accordingly, it can explain the associations between the characteristics of board members and company performance, which mostly refer to financial performance (McGuinness et al., 2017; Wang et al., 2016). However, how the TMT characteristics affect SOEs, with their dual and conflicting commercial and social obligation objectives, are left unexplored.

The Upper Echelon Theory. Upper Echelon theory (subsequently referred to as UE theory) considers top management as a major strategic decision maker within the organization (Hambrick & Mason, 1984). Thus, the strategic decisions made by top management as company leaders will have a direct impact on company performance. Logically, as company leaders are responsible for managing the company as a whole, their characteristics, what they do, and how they do it, will specifically affect company performance (Finkelstein & Hambrick, 1996).

The main premise of upper echelon theory relevant to this research is that top management experience, as well as their values and personalities, have a major effect on their interpretation of situations and consequently influence their decisions. Hence, TMT characteristics are related to the various values, cognition and perceptions that can affect decision making. Upper echelon theory provides some basis for the importance of studying TMT characteristics, as a company's performance, be it commercial or socially orientated, is a reflection of its top management (Yusof & Fauziah, 2010).

Hypothesis Development

CG Definition, RD Theory and UE Theory as the Basis for Hypothesis Development. The study uses the IICG (2010) definition as the basic concept of CG. Some premises of the definition of CG are identified to highlight its uniqueness in the Indonesian SOE setting. These are: (i) the objective of CG to provide added value for stakeholders' interests; and (ii) value is driven by stakeholders' norms, ethics, culture and rules. Since Indonesian SOEs are bound by article 33 paragraph 3 of the 1945 Indonesian Constitution, they have to serve the dual commercial and social orientation objectives. Sometimes, SOEs' social obligation to provide the greatest benefit to people is valued more by stakeholders than commercial objectives. Consequently, the norms, ethics, culture and rules of Indonesian SOEs are driven not only by commercial objectives, but also by social orientation.

The study uses RD and UE theories to build and develop the hypotheses in the unique setting of Indonesian SOEs. RD theory assumes that the TMT is a key factor for companies, managing its resources to achieve high performance. For Indonesian SOEs, financial performance is not always the primary consideration for TMTs in the decision making process, considering the interest of the State as the dominant stakeholder in both commercial goals and social welfare. This means that the TMT characteristics related to values, cognition and perceptions that can affect the decision making process in Indonesian SOEs are expected to be unique in comparison to companies that only pursue commercial success.

Age of TMT Members and Company Performance

Van Ness et al. (2010) found that in general the performance of young board

members was superior to that of older ones. Accordingly, young CEOs are often associated with good qualities. For example, young CEOs: (i) are associated with improvement in financial performance (Darmadi, 2011); (ii) tend to deliver the projected financial results; (iii) are more innovative and have higher participation in corporate oversight; and (iv) are more likely to pursue innovative and risky strategies, so their companies enjoy higher growth and profitability than others. Arguably, in the SOEs setting, young board members might also be more idealistic, so more willing to accommodate social objectives at the cost of commercial performance. Accordingly, the first two hypotheses for Indonesian SOEs with two tier governance system are shown below:

H1a*: The age of the BOC is associated with firm financial performance.*

H1b*: The age of the BOD is associated with firm financial performance.*

Woman in the TMT and Company Performance

Previous studies regarding the association between the inclusion of woman as TMT members and company performance have obtained mixed results (Campbell and Mı´minguez-Vera, 2007). On one hand, TMTs with women members achieve better performance due to certain attributes including: (i) better understanding of the marketplace; (ii) higher creativity and innovation, and (iii) a better decision making. However, some characteristics of women TMT members are argued to be negatively associated with performance, such as their being more risk averse (Jianakoplos & Bernasek, 1998), and having a different level of altruism compared to men (Andreoni & Vesterlund, 2001). Presumably, in the case of SOEs, women TMT members with a higher level of altruism should be more supportive and accommodating in realizing SOE social obligation objectives. Moreover, the risk-averse tendency of women in TMTs is logically more suitable for SOEs to maintain prudent risk management of State assets. Based on these arguments, the second hypothesis proposed by this study is stated as follows:

H2a*: The existence of women on the BOC is associated with firm financial performance*

H2b*: The existence of women on the BOD is associated with firm financial performance*

Education Level of TMT Members and Company Performance

Some previous research has found that the average level of TMT education is positively associated with a company's financial performance (Dewi & Dewi, 2016; Hambrick et al., 1996). Presumably, this is due to the positive associations of education level with certain features, such as a high level of company innovations (Papadakis & Bourantas, 1998) and higher intellectual competence, which may affect the attractiveness of firms in the capital market (Darmadi,2011). When dealing with

SOEs' conflicting objectives, innovativeness and intellectual competence, which are associated with the level of education of the TMT are expected to help the team achieve a sound commercial performance, but at the same time enable them to fulfil their social obligations, an objective which is not the concern of non-SOE TMTs. Therefore, the following hypotheses are proposed:

H3a*: The education level of BOC members is positively associated with firm financial performance.*

H3b*: The education level of BOD members is positively associated with firm financial performance.*

Educationally-fit TMT Members and Company Performance

According to UE theory, the suitability of the TMT's educational background to the company's core business has a positive effect on performance (Darmadi, 2011b; Gîrbină et al., 2012; Gantenbein & Volonté, 2011). Arguably, TMT with educational background that fit to the SOEs core business (hereinafter referred to as "educationally-fit TMT") will be able to understand the business process better, so creating competitive advantages hard to copy by competitors. However, educationally-fit TMTs are disposed to myopic hindsight, consequently being more likely to show bias from their educational background in the decision making process. Therefore, the company's strategic innovations and creativity might be hampered (Goodstein et al., 1994), together with company performance. Although this research does not intend to make a comparison between SOE and non-SOE TMTs, balancing conflicting objectives is never an issue for the latter, so they can focus more on the achievement of sound financial performance. Predictably, achieving good commercial performance is more difficult for SOEs TMTs than their non-SOE counterparts. Therefore, in the SOE setting, the knowledge and skill associated with educationally-fit TMT will presumably be useful in balancing the dual and conflicting commercial and social orientation objectives. Accordingly, the fourth hypotheses proposed are as follows:

H4a*: The fit between BOC educational background and company business is positively associated with firm financial performance.*

H4b*: The fit between BOD educational background and company business is positively associated with firm financial performance.*

Number of TMT Members and Company Performance

RD theory assumes the TMT to be a strategic resource that leads to high performance. Therefore, a large TMT is expected to be associated with high company performance. However, too many members will cause difficulties for the team to perform its role, specifically difficulties in communication and coordination among members. Accordingly, empirical evidence shows a negative association between TMT

size and firm performance (Hardikasari, 2011; Lipton & Lorsch, 1992; Yermack, 1996). In the Indonesian SOE setting, TMT appointments are under the control of the SOE ministry, including TMT size. Arguably, the SOE ministry prefers larger TMTs to accommodate the SOE dual objectives. The logical arguments for both a negative or positive association suggest an optimal number of TMT members, and a non-linear association between TMT size and company financial performance. However, this non-linear association is more likely to have existed over a long period of time. Considering that this study only covers a short period, the fifth hypotheses proposed are:

H5a *: BOC size is negatively associated with firm financial performance.*

H5b*: BOD size is negatively associated with firm financial performance.*

TMT Tenure and Company Performance

With regard to UE theory, researchers agree that board members with a longer tenure may possess greater competence and experience (Vafeas, 2003). Consequently, longer tenure is associated with higher performance (Dagsson & Larsson, 2011; Toyyibah, 2012; Van Ness et al., 2010). Since the legal form of most of Indonesian SOEs is Limited Liability (i.e., PT), the limitation of TMT tenure is regulated based on UU PT 40/2007. Accordingly, although the company is owned by the State, the terms and conditions for TMT tenure are independently determined internally in the company charter. Therefore, this research is expected to find random variations in TMT tenure in the SOE sample. Based on the tenure arguments, the sixth hypotheses proposed are:

H6a*: BOC tenure is positively associated with firm financial performance.*

H6b*: BOD tenure is positively associated with firm financial performance.*

MATERIALS AND METHODS

Sample Selection

The study sample is Indonesian SOEs which published annual reports during the period 2010-2014. The data was obtained from company websites and the Ministry of SOEs. A non-probability sampling technique was used in order to obtain a representative sample according to the predetermined criteria (Sekaran & Bougie, 2013). The criteria and sample selection results are presented in Table 1.

Table 1

Criteria and results of the sample selection

Criterion	2010	2011	2012	2013	2014
List of companies based on Indonesian Ministry of SOEs during observation period	142	141	140	139	119
Companies with no Annual Report on website	-70	-69	-65	-63	-43

Table 1 *(Continued)*

Criterion	2010	2011	2012	2013	2014
Companies belonging to financial industry	-22	-22	-22	-22	-20
Companies with negative financial performance (losses)	-3	-1	-3	-6	-8
Companies with no information regarding TMT characteristics	-9	-8	-7	-6	-6
Companies with incomplete information regarding TMT characteristics	-6	-6	-7	-8	-4
Number of sample companies for each year	32	35	36	34	38
%	23%	25%	26%	24%	32%
Total sample (firm-years)	175				

Hypothesis Testing

To test the proposed hypotheses, the following empirical model, Model 1 was applied:

A notation, description and measurements of the variables used in the model are presented in Table 2.

$$PERFORM_{i,t} = \alpha i + \beta 1AGECOM_{i,t} + \beta 2WOMENCOM_{i,t} + \beta 3EDUCOM_{i,t} + \beta 4FITEDUCOM_{i,t} + \beta 5SIZECOM_{i,t} + \beta 6TENURECOM_{i,t} + \beta 7AGEDIR_{i,t} + \beta 8\ WOMENDIR_{i,t} + \beta 9\ EDUDIR_{i,t} + \beta 10FITEDUDIR_{i,t} + \beta 11\ SIZEDIR_{i,t} + \beta 12\ TENUREDIR_{i,t} + \beta 13\ SIZECOMP_{i,t} + \varepsilon it \quad (1)$$

Table 2

Notation and description of variables in the empirical model

Variable	Description
Dependent	
PERFORM i,t	Company's i financial performance at year t
Independent Variable	
AGECOM i,t	Age of the BOC members of company i at year t
WOMENCOM i,t	Inclusion of women as BOC members of company i at yeart t
EDUCOM i,t	Education level of the BOC members of company i at year t
FITEDUCOM i,t	Level of educational-fitness of BOC members of company i at year t
SIZECOM i,t	Number of BOC members of company i at year t
TENURECOM i,t	Length of service of the BOC of company i at year t
AGEDIR i,t	Age of BOD members of company i at year t
WOMENDIR i,t	Inclusion of women as BOD members of company i at year t
EDUDIR i,t	Education level of the BOD members of company i at year t

Table 2 *(Continued)*

Variable	Description
FITEDUDIR i,t	Level of educational fitness of BOD members of the company i at year t
SIZEDIRi,t	Number of BOD members of company i at year t
TENUREDIRi,t	Length of service of the BOD of company i at year t
Control Variable	
$SIZECOMP_{i,t}$	Size of company i at year t
α, β, ε	Constant coefficient; regression coefficient; error term, level of estimation error in the research

The empirical model was tested using stacked unbalanced panel data with the fixed effects regression statistical technique. Accordingly, the research addresses normality problem, data outlier and heteroscedasticity issues. The company's financial performance PERFORM as dependent variables are measured by both Net Profit Margin (NPM, calculated as the ratio of earning after interest and tax to sales) and Net Operating Profit (NOP, calculated as the ratio of operating profit to sales). Net Earnings after Interest and Tax (NIAT), as components of NPM, represent the residual value distributable to the State as the major shareholder of Indonesian SOEs in terms of dividend. Accordingly, with the aim of aligning the board's interests with those of the State as the dominant owner, the board's incentives systems, particularly bonuses, are often tied to the achievements of NIAT. On the other hand, operating profit as a component of OPM tends to represent a company's competency in conducting its core business and competing in the market. Companies with high core business competencies are expected to have high operating efficiency, and consequently higher OPM. Although highly competent companies are more likely to have high NIAT as the basis of dividend, NIAT can be boosted through income sources other than the core business, such as selling non-productive assets and other income sources.

The company is used as the unit of observation. Therefore, to be consistent, some independent variables associated with board characteristics are scaled by the number of board members in the company. For example, if company A has three BOD members, of whom two have a Master's degree (i.e., with a score equal to 3) and one member has a Doctoral degree (i.e., with the score equal to 4), then the average score for the educational characteristics of the company's BOD is equal to 3.33 (i.e., the sum of 3+3+4 divided by 3). The independent variables, the TMT characteristics, are measured as follows:

i. AGE: Average age.

ii.WOMEN: Dummy variable, 1 if there are women members, and 0 otherwise.

iii.EDU: The average score of education level weighted by the number of board

members in the company, which are scored 1 for diploma degree or below; 2 for bachelor's degree; 3 for master's degree; and 4 for doctoral degree.

iv. FITEDU: The average score of level of fitness between educational background (i.e, business, finance, accounting, electrical engineering, civil engineering), the firm's business and the role of the board, hence measured differently for BOD and BOC as follows:

•FITEDUDIR for BOD: Scored 1 if the educational background is irrelevant to the firm's business as well as the person's directorial function; 2 if the educational background is relevant to the firm's business (for example, an electrical engineer holding a position of finance director in an electrical company); 3 if the educational background is relevant to the directorial function (for example, an accountant holding the position of finance director in an electrical company; and 4 if the educational background is relevant to firm's business as well as to the person's directorial function (for example, an electrical engineer with an MBA in Finance holding the position of finance director in an electrical company). For BOC, since one of its main oversight functions is to maintain financial firm value, the knowledge and skill in relation to finance has a higher score than the others;

•FITEDUCOM for BOC: Scored 1 if the educational background is non-financial and irrelevant to the firm's business; 2 if the educational background is relevant to the firm's business; 3 if the educational background is a financial degree; 4 if the educational background is a financial degree and is relevant to the firm's business.

(v) SIZE: Size of board.

(vi) TENURE: Average length of service of the board.

(vii) SIZECOMP: In total assets of the company.

RESULTS AND DISCUSSIONS

The results of the descriptive statistic of the variables used in the model are presented in Table 3.

Some of the characteristics between the BOC and BOD of the SOEs are quite similar, such as education level (Bachelor's or Master's degree), board size (around 5 persons) and tenure (around 3 years). In contrast, the statistics suggest that BOC age (around 57 years) tends to be higher than BOD age (around 53 years). Interestingly, the BODs (score value = 3.03) have more relevant educational background compared to the BOCs (score value = 2.35). This means that most of the BOD members have an educational background that fits their directorial function, but in the case of the BOCs, although most of their educational backgrounds fit the companies' core business, they are less likely to have financial degree. With regards to company performance, as expected the value of NPM (2.31) is lower than OPM (2.75).

With regards to the issue of endogeneity, to ensure that the value of the dependent variable is exogenous, a test of multi-collinearity was conducted (the results show that the Variance Inflation Factor (VIF) is

Table 3

Statistical description of variables used in the empirical model

Description (N= 175)	Notation (Unit)	Mean	Min.	Max.	Std. Dev.
BOC					
Age	AGEKOM (Year)	56.92	47.67	62.83	2.98
Education Level	EDUKOM (Score)	2.83	1.00	3.75	0.49
Level of educational fitness	FITEDUKOM Score)	235	1.40	3.67	00.47
Size - BOC	SIZEKOM (Person)	5.03	3.00	9.00	1.15
Tenure- BOC	TENUREKOM (Year)	2.92	1.00	6.00	1.03
BOD					
Age of BOD	AGEDIR (Year)	53.03	46.20	63.25	3.13
Education Level - BOD	EDUDIR (Score)	2.72	2.00	3.40	0.26
Level - educational fitness	FITEDUDIR (Score)	3.03	1.67	4.00	0.47
Size - BOD	SIZEDIR (Person)	5.38	2.00	9.00	1.35
Tenure- BOD	TENUREDIR (Year)	3.18	1.00	8.00	1.36
Company Variables					
Net Profit Margin	NPM (%)	2.31	0.20	4.10	1.00
Operating Profit Margin	OPM (%)	2.75	1.10	5.50	0.79
Control Variable					
Company Size	SIZECOM (ln Sales Vol.)	8.52	4.60	13.30	1.85
	Frequency Distribution				
Dummy Variable		Boards with Women (Dummy 1)		Boards without Women (Dummy 0)	
BOC	WOMENKOM	26.9%		73.1%	
BOD	WOMENDIR	20.6%		79.4%	

<10 and the Tolerance Level <1, suggesting no multi-collinearity problem) as well as autocorrelation (in the results of the Durbin-Watson test using both NPM and OPM as dependent variables, the d value falls within the acceptable threshold range, indicating no auto-correlation). Although the correlation coefficient between size BOD/BOC and firm size is statistically significant (the Pearson correlation coefficient for BOD is 0.634 and for BOC is 0.716, significant at a p value of less than 1%) it does not cause a multi-collinearity problem, as suggested by the values of VIF and TL reported above. In addition, an endogeneity problem is less likely to exist, since theoretically firm value

and board characteristics are two different and independent constructs. The results of the empirical test are presented in Table 4.

The empirical test results show that the empirical model is statistically significant using both OPM and NPM as independent variables, as indicated by the F test with a p value less than 1%. With regard to the R-square value, the model has predictive power of 19.6% when using NPM as the independent variable, and 15.5% when OPM is used. Hence, the TMT characteristics research model better predicts the bottom line income available for the State to distribute as dividend compared to the capability to predict the effect of TMT characteristics on SOE core business competence.

Table 4

Empirical test results using fixed effect regression

Description	Predicted Sign	Net Profit Margin (NPM)	Operating Profit Margin (OPM)
		Coeff. Reg.	Coeff. Reg.
Age			
BOC - (*H1a*)	-	+0.029	+0.008
BOD - (*H1b*)	-	+0.035*	+0.027
Inclusion of Woman			
BOC - (*H2a*)	+/-	+0.158	-0.165
BOD - (*H2b*)	+/-	-0.815***	-0.323**
Education level			
BOC - (*H3a*)	+	**+0.331****	+0.170
BOD - (*H3b*)	+	-0.060	+0.140
Educational Fitness			
BOC - (*H4a*)	+	-0.066	+0.005
BOD - (*H4b*)	+	-0.309**	-0.536***
Size			
BOC - (*H5a*)	-	**+0.149***	**+0.114***
BOD - (*H5b*)	-	-0.131	**-0.134***
Tenure			
BOC - (*H6a*)	+	**-0.148****	-0.017
BOD - (*H6b*)	+	-0.001	+0.015
Company Size	-	-0.059	-0.044
Sig F	0.000		0.000
Adjusted R2	0.196		0.155

*** Significant at p value ≤ 1% ; **Significant at p value ≤ 5% ; *Significant at p value ≤ 10%

For BOC, the empirical test results show that education level has a positive association with NPM, consistent with *H3a* and some of the previous studies on this topic (Dewi & Dewi, 2016; Darmadi, 2011b; Papadakis & Bourantas, 1998; Smith et al., 2006). Presumably, for the BOCs of Indonesian SOEs, a higher education means higher innovativeness and intellectual competence to supervise and advise the BOD in achieving high commercial objective performance without sacrificing its social obligations. On the other hand, the empirical evidence regarding BOC size contradicts *H5a* and some of the previous studies on this topic (Easenberg et al., 1998; Hardikasari, 2011; Jensen, 1993; Yermack, 1996). Arguably, although a larger size might cause communication and coordination problems among the BOC members of Indonesian SOEs, it could lead to a more comprehensive advisory and oversight function when dealing with the conflicting commercial and social objectives. The empirical evidence on BOC tenure shows a contradictory result to H6a and some of the previous studies on this topic (Dagsson & Larsson, 2011; Raymond et al., 2010; Toyyibah, 2012; Vafeas, 2003). Although the competence and experience associated with tenure is expected to enable the BOC to achieve high performance without sacrificing its social objectives in the Indonesian SOE setting, according to UE theory, longer tenure could also be associated with decreased BOC awareness of strategic issues, resulting in lower company bottom line earnings measured by NPM. Overall, BOC characteristics are associated more with NPM as the primary interest of the State to gain dividend from the Indonesian SOEs, and less on the core business competence indicated by OPM.

Contrary to those of the BOC, the BOD characteristics have more balanced effects on both the State interest in gaining dividend, as indicated by NPM, and also the core business competence as shown by OPM. Accordingly, the inclusion of women in the BOD is negatively associated with both NPM and OPM, which is consistent with *H2b* and also in line with the research results of some previous studies (Adams & Ferreira, 2009; Darmadi, 2011a; Wellalage & Locke, 2012). Considering the dual commercial and social objectives of Indonesian SOEs, the existence of women in the BOD arguably makes the company incline more to its social objectives rather than commercial ones, due to women's high level of altruism compared to their male counterparts (Andreoni & Vesterlund, 2001). This is consistent with the results of previous studies, which have found that woman TMT members are more reluctant to take risk (Jianakoplos & Bernasek, 1998) and display a type of altruism different to men. Regarding BOD educational relevance, contrary to *H4b*, which hypothesised that it would be positively associated with performance (Gîrbină et al., 2012, Gantenbein & Volonté, 2011), the empirical evidence shows a negative association in terms of both NPM and OPM.

Accordingly, one of the interpretations of the SOEs setting is that the knowledge

and skill associated with BOD members with a relevant education fail to promote the achievement of high financial performance, arguably, due to the burdens of social obligations. With regards to BOD size, in contrast to BOC, and consistent with *H5b*, the bigger the BOD size, the lower the company performance in terms of NPM (Eisenberg et al., 1998; Yermack, 1996). This contrast might be due to the executive role of the BOD, which often has to make decisions in a limited time, so effective communication and coordination are necessary conditions. In the SOEs setting, effective communication and coordination are even more important to overcome the conflicting social and commercial objectives. In general, the BOD characteristics have more balanced associations with both NPM, as the primary interest of the State is to gain dividend from the Indonesian SOEs, and with the core business competences indicated by OPM.

CONCLUSIONS

Although SOEs have dual objectives compared to non-SOEs, which focus on commercial objectives only, in general the results of this study are in line with the upper echelon theory (Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984) and resource dependence theory (Dalton et al., 1999; Pfeffer & Salancik, 1978). Most BOC characteristics are associated with NPM, as the major interest of the State to earn dividends from SOEs investment. Accordingly, the BOC's level of education and size is positively associated with NPM, while its tenure is negatively associated. With regards to OPM, only BOC size is positively associated. To a certain extent, these results relate to the overseeing role of the BOC to safeguard the State's earnings. On the other hand, BOD characteristics are associated with both NPM and OPM. It has been shown that BOD age is positively associated with NPM, while the inclusion of women in the BOD and the educational relevance of its members are negatively associated. For OPM, BOD size is positively associated, women's inclusion in the BOD and educational relevance are negatively associated. The results are consistent with the executive role of the BOD, which has to focus not only on the bottom line profit, but also has to maintain the company's core competences to compete in the market.

In general, the effect of TMT characteristics on Indonesian SOEs performance can be explained by the dual and conflicting objectives of commercial orientation and the social obligations of the State as the dominant and controlling owner. The research findings improve our understanding of the effect of TMT on financial firm performance in the specific Indonesian SOEs setting, which links firm objectives with the country's constitution. Accordingly, the findings would be useful for the Indonesian Ministry of SOEs to determine BOC and BOD profiles, which could lead to stronger financial performance (i.e., OPM and NPM) without sacrificing the social obligations of the State.

Research Limitations and Suggestions for Future Research

This research uses secondary data to measures TMT characteristics, including educational relevance and gender. The scoring techniques to measure the educational relevance variable may incorporate researcher bias, while the dummy variable to detect the effect of women's inclusion in the Board is oversimplified. Therefore, further research should apply a triangulation method to increase internal research validity, such as interviews with the Board, focus group discussion with peer researchers, or direct observation, in order to capture richer data. Although this research considers the social orientation of Indonesian SOEs as a separate objective to commercial orientation, it captures only commercial performance (i.e., NPM and OPM). Future research should capture the dimension of the social objectives of Indonesian SOEs besides the commercial indicators to increase the validity of the research findings.

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Does Religion Affect Capital Structure in Indonesia?

Rida Rahim[1]*, Cynthia Afriani Utama[2] and Rofikoh Rokhim[2]

[1]Department of Management, Faculty of Economics, Andalas University, 25166, Padang, West Sumatera, Indonesia

[2,3]Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

The purpose of this study is to analyse the influence of the religion and religious values of Chief Executive Officers (CEOs) on capital structure in public companies in Indonesia. The religious values embraced by CEOs are reflected in their involvement in fraud cases and the frequency of their attendance at board meetings. The study used a sample of 231 companies (1,386 observations) over the period 2010-2015. It was found that if firms had a Christian CEO this would have a significant impact on capital structure due to the higher debt levels, compared to CEOs of other religions. Conversely, Muslim CEOs had an insignificant impact on capital structure. Similarly, CEOs who were involved in fraud cases had more debt than those not involved in such cases. CEO attendance at board meetings also had a significant positive impact on corporate debt level.

Keywords: Attendance, CEO's religion, debt, fraud

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E-mail addresses:
ridarahim@eb.unand.ac.id (Rida Rahim)
cynthiautama@yahoo.com (Cynthia Afriani)
rofikoh.rokhim@ui.ac.id (Rofikoh Rokhim)
*Corresponding author

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INTRODUCTION

The role of religion in economic activity is an important issue and has long been the focus of extensive literature. According to Lagace (2001), how individuals combine personal religious values with business life is "one of the major fields that has not been much researched". Recent studies have shown that religion influences personal behaviour and economic development (Jiang et al., 2015). However, it is still largely unclear how individual religious

beliefs affect company behaviour, such as the influence of the behaviour of the Chief Executive Officer (CEO) on investment decisions and a company's capital structure. This is therefore an interesting topic to study.

Mismanagement in deciding capital structure, such as too high a proportion of debt or equity, will result in high capital costs. This situation can lead to low profitability and possible bankruptcy (Ahmed Sheikh & Wang, 2011; Brigham & Houston, 2004; Chadha & Sharma, 2015). To solve this problem management, one may have to commit fraudulent acts in the corporate financial statements due to the inability of the company to cover the high cost of capital. This situation is also driven by the company's obligation to fulfil contractual clauses with creditors/investors by showing prospective profit and fulfilling the targeted Debt to Equity Ratio (DER) with liquid working capital. The cases of World Com. Inc, Enron and Kimia Farma Tbk indicate that the potential for fraud by management/ executives is related to incorrect decisions on capital structure (Scott, 2006).

The preferences and style of risk management played a role in the combination of debt-equity in determining a firm's capital structure (Maness & Zietlow, 2005). This view is supported by Barton and Gordon (1987) and Berger and Udell (1998), who found that executive behaviour on corporate financial decisions making was influenced by company-specific factors such as risk and control, one's behaviour such as norms, religion (culture), attitudes, preferences and desires.

Such behavioural decisions are also based on the planned behaviour theory, in which antecedent intention is seen as a determinant of one's behaviour and that intention is a function of attitude and subjective norms of behaviour (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1977). The subjective norm of behaviour in this study is the religion and religious values embraced by CEOs. Religions that people have faith in can shape behaviour throughout their lives and provide the foundation for their moral life, leading to the quality of self-appreciation and attitude of people who tend to aspire to the noble values they believe in (Kum-Lung & Tek-Chai, 2010).

Every religion teaches and emphasises religious values that should not conflict with social norms. However, in the Islamic concept, any decision or act of conduct must be based on the Hadith and the Quran; for example, the use of funds related to interest is considered usurious and is a practice strictly forbidden (Ali-Imran [3]: 130), as affirmed in Indonesian Council of Ulema Decree No. 1/2004. On the contrary, in Christianity, due to the great demand for capital to boost commerce and the economy, priests allow interest-bearing financing activity (usury) (Ackerman, 1981; Iannaccone, 1998; Noonan, 1993). In addition, in Hinduism, the concept of interest is written in the book of Manawa Dharmasastra VIII, 142, in which it is considered very reasonable and acceptable. On the other hand, the books of Buddhist and Confucian teachings do not discuss the subject of interest, as they put more emphasis on philosophical teaching. This indicates that there may be differences

in individual behaviour when making a company's financing decisions based on the religious teaching that an individual has received.

Previous research has found that the cultural/religious characteristics of a region affect capital structure decisions, with firms located in Catholic-majority regions tending to have larger debts than those in Protestant-dominated ones (Baxamusa & Jalal, 2014). This is because there are wide differences between Catholics and Catholic characteristics and Protestant culture. Protestants believe that the economic benefits of property ownership should accrue to the owners. In contrast, Catholics consider property to be more of a social good. This difference is important, as it has implications for ownership rights and, by extension, stock ownership. Second, Protestants believe that each individual should determine what is right for himself other-self. In contrast, the Catholic Church is the arbiter of the common good. Stulz and Williamson (2003) suggested that this difference had led to Protestants being more individualistic than Catholics.

On the other hand, Gunn and Shackman (2014) found that there was no significant difference in terms of debt ratios between Islamic and non-Islamic countries. However, different findings were made by Abraham (2013), that Islam had a significant negative effect on the formation of the capital structure of banks in Saudi Arabia, where state-owned banks tended to have lower debts than those with foreign ownership. The most recent research in Asia conducted by Jiang et al. (2015) found that the religiosity of family business founders with Western religions (Islam, Catholicism or Protestantism) had debts and risks that tended to be lower than those practicing other religions. Meanwhile, the religiosity of family business founders with Eastern religions (Buddhism or Taoism) had no significant impact. This study aims to develop the research of Baxamusa and Jalal (2014) and Jiang et al. (2015), focusing on CEOs' religious behaviour and religious values, and the effects of these on a company's capital structure. A CEO's religious values are the ethical norms that serve as the reference for the personal norms for a corporate leader, as governed by Financial Services Authority Regulation No. 33/POJK.04/2014, such as the morality and obligation to lead and manage for the benefit of the company. The morality of executives reflects their behaviour in terms of not deviating from the provisions based on the norms of society in general, such as being honest, and not committing corruption or other disgraceful acts. Such executive behaviour can be indicated by ascertaining whether executives are involved in fraud cases (Grullon et al., 2009). A manager with stronger morality and integrity should have better religiosity, thus preventing directors, managers and employees of the company from committing fraud (Dyreng et al., 2012; McGuire et al., 2012). Persons (1995), Spathis (2002) and Skousen et al. (2009) found that the tendency for fraudulent actions seen in financial statements was related to financial leverage. Other executive

religious values and norms include the obligation to lead and manage the company for its own benefit by considering the principles of good corporate governance. The implementation of good corporate governance is an important part of the effort to improve compant efficiency, as it is expected to reduce corporate agency costs and to keep the moral hazard behaviour of management/corporate executives at bay (Jensen & Meckling, 1976). The role of executives is reflected in their attendance at board meetings. At such meetings, proactive CEOs will participate in formulating strategic decisions, overseeing the planning, monitoring ethical behaviour, ensuring the accuracy of financial reporting and legal compliance, implementing good governance effectively, and protecting the interests of stakeholders (Rezaee, 2004). Chen and Chen (2012) found that regular board meetings could help allocate capital very efficiently, while Achchuthan et al. (2013) and Khan and Wasim (2016) found that CEOs' attendance at meetings had a significant positive effect on leverage.

This research is focused on public companies in Indonesia. Indonesian data are used because first the situation in Indonesia is very different from that in developed countries, although the fact that Muslims comprise the majority of the population (BPJS Centre, 2010) may not be reflected in the behaviour of businesses in the country. Based on preliminary data collected by the researchers through the observation of 1,386 samples (2010-2015), 34.2% of CEOs are Muslim; 48.3% are Christian (Catholic and Protestant), and 17.5% are in other categories (Confucian, Hindu, Buddhist and Atheist). Second, CEOs play an important role companies, being responsible for all corporate business matters, including legal issues relating to the business of the company (Financial Services Authority Regulation No. 60/POJK.04/2016). Third, the reason for using Indonesian data is one of practicality.

Referring to the literature discussed above, it can be concluded that the main proposition of this paper is that corporate financial decisions vary, particularly those related to capital structure, and this variation seems to be related to differences in the religious behaviour and values of CEOs. The research findings indicate that if companies with Christian CEOs (Catholic or Protestant) tend to have greater debt levels compared to CEOs of different religions (Abraham, 2013), it is suggested that such companies adopt better policies to protect shareholder rights and to improve stock market efficiency in order to encourage greater market share participation (Stulz & Williamson, 2003). On the other hand, with regard to Muslim CEOs, there appears to be no significant impact to debt, perhaps because they are less obedient in practising their religious teachings and the financial decisions they make are more likely to be influenced by other directors.

It was found that religious values reflected in fraudulent acts show that the CEOs involved in fraud cases tend to have a higher level of debt compared to others. Companies should apply consistent law

enforcement to keep moral hazard practices in check to help achieve an information-efficient capital market in trading activities in the Indonesian capital market. CEO attendance at board meetings has a significant positive impact on corporate debt level. CEOs tend to be risk-takers when choosing sources of funding to expand corporate business and in the aggressive exploitation of investment opportunities by management (Achchuthan et al., 2013). Therefore, it is expected that companies will implement good corporate governance, transparent principles, accountability, responsibility, and independence and fairness of corporate governance, which should lead to the disbursement of funds based on calculated risk, without exceeding the maximum limit of debtors' lending ratings.

The remainder of the paper is organised as follows. Section 2 addresses relevant literature and presents the study hypothesis. Section 3 describes the data and methodology of the study, while Section 4 presents and discusses the results. Section 5 provides the robustness test results, and Section 6 is the closing statement.

Literature Review and Hypotheses

Management and styles related to risk preferences play a role in debt-equity combinations when determining a company's capital structure (Maness & Zietlow, 2005). This argument is supported by Barton and Gordon (1987) and Berger and Udell (1998), who found that executive behaviour when taking financial decisions, apart from being influenced by company-specific factors related to risk and control, was also influenced by behavioural factors such as norms, religion (culture), attitudes, preferences and desires. Such behavioural is also based on the theory of planned behaviour, in which the antecedent of intention is seen as a determinant of one's behaviour, and that will is a function of attitude and subjective norms on behaviour (Ajzen & Fishbein, 1980). The subjective behavioural norms in this study are the religion and religious values of the CEO.

Mittelstaedt (2002) found that religion and religious institutions influenced the economy through various market activities and the government (Smith, 2007). Religions play an important role in everyday life and people's ethical behaviour (Weaver & Agle, 2002). Religions shape the entire life of individuals and provide the foundation for morality, leading to the quality of comprehension and attitude of those who tend aspire to the noble values in which they believe (Kum-Lung & Tek-Chai, 2010).

People who are raised religiously exhibit the same beliefs and preferences, even when they reject religion as adults. Similarly, they find that cultural traits persist from generation to generation, even when the underlying institutional factors have changed substantially (Guiso et al., 2002). A person's attitude cannot be separated from the activity of deciding how to behave. This decision on behaviour is based on behavioural intention as a function of attitude and the subjective norms of behaviour (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1977). The subjective norms of behaviour in

this study are reflected in CEOs' religious behaviour and their religious values in the form of ethics and morality, which should serve as a reference for owners/managers in running their businesses.

Indonesia is the largest Muslim country in the world, with Islamic followers constituting 87.18% of the country's population (BPJS Centre, 2010), but this is not reflected in the business conditions of companies listed on the Indonesia Stock Exchange. Preliminary data collected by the researchers comprised a sample of Muslim CEOs (34.2%), Christian (Catholic and Protestant) CEOs (48.3%), and others categories (Confucian, Hindu, Buddhist and Atheists) (17.5%) from the observation of 1,386 sample.

Therefore, the proxy for the CEOs' religious behaviour in this study is not seen from the religious denomination of the religious territory of the company (Baxamusa & Jalal, 2014; Gunn & Shackman, 2014), but is viewed from the religious behaviour of the CEOs, whose religion is predominantly embraced on the Indonesia Stock Exchange by assuming that they have the same level of obedience as their Muslim and Christian (Catholic and Protestant) peers, as is the case of CEOs with other beliefs (Confucian, Buddhist, Hindu and Atheist). Therefore, CEOs' religious values serve as a proxy for measuring their belief in the norms of their religious teachings, namely honesty, discipline, responsibility and a high standard of morality as reflected in their ethical values, together with the responsibility of CEOs who are involved in moral hazard (fraud) cases and their attendance as directors at board meetings (Financial Services Authority Regulation No. 33/POJK.04/2014).

Abraham (2013) found that the religious characteristics of a particular country, in this case where Muslims were in the majority, had a significant influence on the formation of the capital structure of banks in Saudi Arabia, where state-owned banks had lower debt than those with foreign ownership. Islam has regulated in sharia and the Quran that the source of interest-bearing funding (usury) is strictly proscribed by Islamic law, as stated in Surah 2 (Al Baqarah) verses 275 and 278, and Surah 3 (Ali Imran) verse 130. This is reinforced by a fatwa issued by the Indonesian Council of Ulema (Fatwa No. 1/2004).

This is supported by research conducted by Jiang et al. (2015), who found that the founders of family corporations who embraced the religions of the West (Islam, Protestantism and Catholicism) had less debt and risk, while those who embraced religions of the East (Buddhism and Confucianism), their decision making on corporate were not influenced by their behavior at all. Western religions typically preach the existence of one supernatural God whom their followers worship and with whom they believe that they can communicate with, while Eastern religions often teach a "philosophy of life" rather than contend that there is a single God who interacts with followers. The ultimate goal for adherents of Western religions is salvation or eternal life, while the ultimate goal for adherents of Eastern ones is

enlightenment. The adherents of Eastern religions may not be risk averse, as these religions teach acceptance of uncertainty rather than offering salvation to overcome this and any related anxiety. Miller and Hoffmann (1995) found that followers of Western religions were risk averse, while followers of Eastern religions were not.

Different results were obtained by Baxamusa and Jalal (2014), namely that companies in Catholic regions had higher debt than those located in Protestant areas. This is consistent with the view of Christian reformers (16th Century to 1836), that Christianity should allow interest-bearing loans for capital and business activities. This view is reinforced in Deuteronomy 23:20, which allows for the provision of interest-bearing loans to foreigners. Based on the above sources, the behaviour of a person (CEO) in an organization is also influenced by other factors, such as religion he or she adheres to. Religions that one believes relate to their daily behaviour and form the entire life of individuals that provides a moral foundation for their life in daily and the organizations where they work (Conrad et al., 1998). The attitude and behaviour of individuals indicate the extent to which they are committed to the beliefs of religious teachings (Kum-Lung & Tek-Chai, 2010). Kennedy and Lawton (1998) found that religion was the key social mechanism which influenced people's beliefs and behaviour. Based on the above description, the influence of CEOs' religion on capital structure is posited as follows:

H1a: Muslim CEOs have lower corporate debts than those of other religions.

H1b: Christian CEOs (Catholic and Protestant) have higher corporate debts than those of other religions.

Religious values in this study are measured by fraud committed by CEOs and their attendance at board meetings. The recent moral crisis of entrepreneurs demonstrates ethical violations committed by corporate executives at both international and national levels. To control the unethical behaviour of managers, religious values are required as a social mechanism, which in turn limit unethical corporate practices. Dyreng et al. (2012) and McGuire et al. (2012) found that firms with strict socio-religious norms had higher accrual qualities and lower accounting fraud risks.

According to Chen and Steiner (1999), the tendency of companies to commit breaches of credit agreements may result in financial distress, due to an increase in corporate debt. This is because a company's management will choose to use accounting methods that will shrink leverage ratios by shifting future earnings periods to the current period, when firms have high leverage ratios (Watt & Zimmerman, 1990).

On the other hand, fraudulent behaviour by companies increases information asymmetry between them and creditors. As a result, creditors need to monitor the company more strictly, which increases monitoring costs and will be reflected in increased interest rates and a reduction in the number of loans granted (Chen et al.,

2011). Creditors will consider the financial status of a company when signing contracts with it by using an effective monitoring system. Wei (2006) found a clear positive relationship between loans provided by creditors and a company's financial status. Any fraud committed by a company will change creditors' expectations of its risks and information, which will affect loans made to it. This argument is supported by the findings of Chen et al. (2011), namely that if companies are involved in fraud cases, this will have a significant negative impact on the amount of debt that will be provided by creditors in the short term. Based on the above description, the influence of a CEO who commits fraud related to capital structure is posited thus:

H2: CEOs who are involved in fraud cases have lower corporate debt than those who are not.

Poor performance by a company leads the government to pay more attention to its board of directors. It does this by stimulating the board's activities to to more increase monitoring and control to the company (Sarbanes, 2002). Therefore, CEOs' monitoring of the company's operational performance and sustainability is considered as an important aspect of their obligations. The General Guidelines of Good Corporate Governance of Indonesia of 2006 stipulates that one of the structures and working mechanisms that should be reported regularly is the number of meetings held by the board.

CEOs have a high degree of responsibility and integrity in performing their duties and obligations as directors, a measure of responsibility and integrity CEO one of which is to ensure CEOs' attendance at board meetings. More frequent meetings by the board of directors can improve the quality of the supervision of its managers (Vafeas, 1999) and provide more opportunities for discussions on company performance (Schwartz-Ziv & Weisbach, 2013).

Achchuthan et al. (2013) found that there was a positive relationship between the number of board meetings and a company's leverage. They stated that board meetings had a significant positive effect on capital structure decisions because the number of meetings regularly attended by CEOs tend to increase the level of corporate debt when pursuing an optimal capital structure by minimising average capital costs and maximising the value of the company (Kajananthan, 2012). This indicates that the more frequently meetings are held, the more likely it is the debt ratio will increase.

Based on the concept of the trade-off theory, companies prefer debt to stocks when they have to spend external funds, as the cost of debt is considered cheaper than that of equity (Hansen & Crutchley, 1990). More board meetings result in a higher debt level in pursuing an optimal capital structure, which minimises the average capital cost of the company. This indicates that when meetings are held more frequently, the debt ratio will increase. The associated hypothesis is as follows:

H3: The frequency of CEOs' attendance at board meetings has a significant positive effect on the company's debt level.

MATERIALS AND METHODS

Data on the debt-to-equity ratio, attendance, and control variables such as age, educational background of the CEOs, size, return on assets (ROA), standard deviation of ROA (SDROA), investment opportunity set (IOS), and firm age presented in companies' financial reports from 2010 to 2015 were obtained from http://www.idx.co.id. The data collection was based on the purposive sampling method employing several criteria such as that companies should have positive equity, while sharia-originated financing was excluded. The religion of CEOs religions was measured based on the dominant religions present at IDX: Islam, Christianity (Catholic and Protestant), and other beliefs (Confucianism, Buddhism, Hinduism and Atheism).

The CEOs' religious data were obtained through interviews with corporate secretaries, online media, magazines and newspapers. This variable used the dummy symbolised as $DRel_{CEO}$, where $DRel_{CEOIslam\_others}$, dummy variable 1 as Muslim CEOs, 0 = CEOs who embrace other religions, and $DRel_{CEOChristian\_others}$, dummy variable 1 as Christian CEOs, and 0 are CEOs who embrace other religions.

The basic idea of classifying religions in the study was based on the dominant religion of its adherents in Indonesian firms, with Muslim CEOs at 34.2%, Christian CEOs (Catholic and Protestant) at 48.3%, and others (Confucian, Hindu, Buddhist and Atheist) at 17.5%, based on the observations from the 1,386 samples.

Religious values were represented by the CEO in cases of fraud. Fraud is defined as an act of deliberate deception by a person or an entity that knows that such an action may result in harm to another individual or entity (Audit Board of The Republic of Indonesia Audit [BPK], 2013). This variable used a dummy denoted by DFr, with a dummy variable 1, if the company/board of directors was involved in fraud cases, or 0 otherwise. The fraud data were obtained by taking the following steps: 1) searching online media, magazines and newspapers to detect CEOs involved in fraud cases from 2010 to 2015; 2) cross-checking data with the names of CEOs involved in fraud cases with the data available at the Corruption Eradication Commission/ Financial Services Authority; and 3) using Indonesian positive law as a measure of fraud committed by a company/management, starting from suspects, defendants and convicted persons. The other religious value was the frequency of CEO attendance at board meetings, as represented by the percentage of attendance. This variable is denoted as AttdCEO. The following equation was used to examine the influence of religion and religious values on capital structure :

$$DER_{it} = \alpha_{oi} + \beta_1 D_{RELit} - \beta_2 D_{FRit} + \beta_3 ATTD_{it} - \beta_4 AGE_{it} + \beta_5 D_{EDUit} + \beta_6 SIZE_{it} - \beta_7 ROAit - \beta_8 SDROA_{it} - \beta_9 IOS_{it} - \beta_{10} AgF_{it} + e_{it}$$

Data Analysis Technique

The model selection analysis was performed between the pooled least square (PLS) model and the fixed effect model (FEM) and then between the FEM and the random effect model (REM), as can be seen in the Chow test and Haussman test results. The Chow test results show that Prob = 0.0000 for the cross-section F, which is less than 0.05, resulting in the rejection of *H0.* Therefore, it can be concluded with a confidence level of 95% that the panel model is better than the common effect model (CEM). The Haussman test was then conducted, which showed that Prob = 0.0906 for the random cross-section, which is greater than 0.05, implying that *H0* is rejected, so it can be concluded that with a 95% confidence level that the FEM is better than the REM. The results of the Chow and Haussmann tests show that the FEM is more suitable than the REM for use as the panel data regression model. The descriptive statistical analysis shown in Tables 1 and 2 describes the company-specific variables of religion, fraud and attendance. The debt equity ratio (DER) is the ratio of total debt to total equity, while the control variable is a determinant variable that affects capital structure. CEO age and company size is the natural log of total assets. Profitability (return on assets) is the ratio of EBIT to total assets. Business risk is the standard deviation of ROA; the investment opportunity set is formulated as market value divided by asset value (MB/VA) = [total assets - total equity + number of shares outstanding x stock closing price] / total assets. Company age, CEO religion, CEO education background and fraud are the dummy variables.

Based on the descriptive statistics presented in Table 1, the average proportion of the debt to equity ratio of all firms in the sample is 120.7%. The average use of corporate debt is greater than equity, indicating that companies tend to use debt rather than their equity for corporate financing (Mayers & Majluf, 1984). The frequency of CEO attendance at board meetings at all companies in the sample is 94%, indicating that such presence was quite frequent for companies on the Indonesia Stock Exchange.

Table 1
Descriptive statistics

	DER	AttdCEO	AgeCEO	SIZE	ROA	SDROA	IOS	AgFirm
Mean	1.207	0.940	54.000	24.189	0.110	0.0120	1.394	10.328
Median	0.876	0.980	54.000	26.311	0.091	0.0060	1.078	10.275
Maximum	4.130	1.000	86.000	34.708	0.683	0.3420	7.586	11.552
Minimum	0.020	0.460	49.000	11.518	-0.777	0.0002	0.044	8.006
Std. Dev.	1.091	0.094	9.169	4.974	0.130	0.0200	0.953	9.650

Table 2 illustrates that the proportion of CEOs committing fraud was 11.8% of the sample, demonstrating the fraud committed by those CEOs according to their religion. The highest number of fraud cases was in line with the following religions: 47.56% for Christian directors; 29.88% for Muslim directors; and 22.56% for those with different beliefs. Observing the percentage of fraud committed by the CEOs of other religions (Confucianism, Buddhism and Hinduism), the figure is quite high, at 22.56%. This shows that fraud can be committed by any CEO, regardless of their religious background.

Table 3 shows the results of the regression assumption test, in which the data are normally distributed (Walpole, 1982). The correlation value between the independent variables indicates that there is no indication of multicollinearity. This can be seen from the correlation between independent variables of <0.8; this shows that the correlation between the independent variables is not an indication of multicollinearity, autocorrelation or heteroscedasticity, thus the above regression model can be used in the study.

Table 2

Category variable

	Fraud	Non Fraud	Economy	Non Economy	Islam	Christian (Catholic & Protestant)	Others (Khonghucu, Budhist, Hindu, Atheis)
Frequency	164	1.222	616	770	474	670	242
Percentage	88.2	11.8	44.4	55.6	34.2	48.3	17.5
					Islam	Christian (Catholic & Protestant)	Others (Khonghucu, Budhist, Hindu, Atheis)
Fraud (mean)					29.88	47.56	22.56
Attd (mean)					0.89	0.88	0.90

Note: In terms of the CEO's religion, the dummy variable 1 represents Muslim CEOs and 0 is for others, and the dummy variable 2 represents Christian CEO's and 0 is for others. For the fraud variable, the dummy variable 1 represents CEOs who have committed fraud and 0 is for others. For the educational background variable, the dummy variable 1 represents CEOs with economics as their educational background and 0 is for others.

Table 3

Testing assumption regression

Regression assumption	Test	Test result
Normality	JB-test :0.000<α =5%	Abnormal, because of the amount data >1000, said approach normal data central limit theory, Walpole (1991)
Multicollinearity	Correlation between independent variables <0.8	No multicollinearity
Autocorrelation	Dwstat 0.97099<Dwstat<2.05436	Durbin Watson 1.506024 this study is an independent autocorrelation test
Heterokedasticity	Obs*R Squared 0.2484 >α -5%	No heterokedasticity

RESULTS AND DISCUSSIONS

Table 4 presents the results of the multiple linear regression test with the fixed effect model. Obviously, many company-specific factors can explain the level of debt recorded by a company. Therefore, the main independent company control variables include age, the educational background of the CEOs, size, ROA, SDROA, IOS and AgFirm. The estimation results and statistical model of *H1b, H2* and *H3* show a significant impact of religion, fraud, attendance and CEO age on capital structure. This suggests that Christian CEOs in Indonesian public companies tend to have a higher debt level than those who believe in other religions, as indicated by a positive and significant coefficient of 1%. The results related to *H1b* follow the study proposition and are in line with research by Abraham (2013), Baxamusa and Jalal (2014) and Jiang et al. (2015) namely that religion influences decisions on the capital structure of companies. This study provides evidence that the behaviour of a CEO in an organization is influenced not only by the internal and external factors of the company, but also by another factor, namely the religion of the CEO. Religion is believed to be related to daily behaviour and shapes the entire life of individuals, providing the foundation for moral life and leading to the quality of life and attitude of those.

The attitudes and behaviours of individuals indicate the extent to which they are committed to their religious beliefs (Kum-Lung & Tek-Chai, 2010). This is indicated by the behaviour of Christian CEOs, whose religious teachings allow interest-bearing loans (Iannonce, 1998; Jiang et al., 2015). Therefore, there is a tendency for them to use debt as a corporate source of funds, indicating that the religious teachings trusted by CEOs are reflected in deliberate behaviour (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1977). *H1a* is rejected, implying that Muslim CEOs do not have an influence on capital structure. This result shows that Muslim CEOs may be less devoted to their religion and less obedient to the teachings of Islam. It also applies to CEOs' religious values. CEOs involved in

Table 4

Regression result of religion and religious values to capital structure

	Coefficient (Std Error)
Constant	0.286*** (0,0113)
$Rel_{CEOIslam\_O}$	0.0053 (0,036)
$Rel_{CEOKristen\_O}$	0.1145** (0,0265)
$Fraud_{CEO}$	0.1084*** (0,0252)
$Attd_{CEO}$	0.1364** (0,0569)
Age_{CEO}	0.0072** (0,0015)
Edu_{CEO}	-0.1026 (0.0145)
SIZE	0.0137 (0.0039)
ROA	-0.3545*** (0.0647)
SDROA	0.1854** (0.0147)
IOS	-0.0145** (0.0056)
AgFirm	0.0173*** (0.0024)
Adjusted R^2	0.511
No. of Obs Firm-Year	1.386

Note: *significant at 10%, **significant at 5%, ***significant at 1%.

fraud cases tend to have larger debts than other CEOs, as indicated by a positive and significant coefficient of 1%.

The result of *H2* is different to the research of Chen et al. (2011), that companies involved in fraud cases will experience a significant negative impact on the amount of debt provided by creditors, as fraud will cause information asymmetry between the company and its creditors/funders. This finding relates to research conducted by Qiang (2003) and Scott (2006), who found that managers involved in fraud cases preferred to take more risks. This means that there is a tendency for the company/board of directors involved in fraud to have greater

debts than others. CEO attendance at board meetings (H3) has a significant positive effect on corporate debts, indicating that debts still provide a higher return than the cost of the debts themselves (Kajananthan, 2012).

CEO age has a significant positive effect on corporate debt, indicating that the older the CEO, the higher the company debt. This suggests that older CEOs are more willing to take risks and use more debts, tending to be overconfident. The finding is different to that of Kyenze (2014), who found that there was a significant relationship between capital structure and age; companies that had old board members tended to choose leverage or a low debt ratio compared to young boards. Educational background has no significant effect on capital structure, as every company requires different skills according to its needs (Kusumastuti et al., 2007).

The regression results also show that firm size has no significant relationship with debt, which is in line with Modigiani & Miller (1958). Profitability has a significant negative effect on the level of company debt. This empirical evidence suggests that higher corporate profitability has a low debt ratio, indicating that the company owns and employs a substantial amount of internal funding (Mayers & Majluf, 1984; Rajan & Zingales, 1995).

Business risk has a significant positive effect on the level of company debt. This empirical evidence shows the higher the company risk, the greater the debts required to finance its investment. The preference of boards of directors/corporate management in Indonesia with regard to risk is as risk-seekers. This is because funds derived from debts still provide additional benefits (return) that are greater than the required cost of funds due to business uncertainty (Hansen & Crutchley, 1990). Investment opportunity set (IOS) has a significant negative impact on a company's capital structure; companies with a high IOS tend to use internal funding sources.

This condition is inseparable from the cost incurred from corporate funding choices. Future investment options selected by management are expected to result in a greater return compared to the cost of equity and can provide benefits to the company (Kallapur & Trombley, 1999). Investors will take account of companies with better growth for their investments due to the stock return gained by them in the future.

Company age has a significant positive impact on debt, indicating that a company needs external funding until its situation reaches an optimum level (Van der Wijst, 1989).

Robustness Test

The next robustness test was conducted as shown in Table 5. For the first robustness test, a different dependent variable was used, i.e. the debt-to-total assets ratio, since this debt ratio reflects another proxy for measuring a company's capital structure (Baxamusa & Jalal, 2014). The first column of Table 5 shows the estimated coefficients, which are consistent with the previous finding. It is found that Christian CEOs and debts have a significant relationship, with

a significant probability at a statistically significant level of 1%, while fraud and attendance showed significance levels of 1% and 10%.

The results of the robustness test show that the variables of religious behaviour and religious values have a significant impact on decisions regarding firms' debt level, which is similar to the test results for the debt-to-equity ratio shown in Table 4. For the control variables, the age of directors, ROA and company age have a significant impact on the debt ratio, with the same direction coefficient as in previous findings. For the second robustness test, a different size of sample, with the value of the debt-to-equity ratio surpassing the mean value, was used. The results show that the variables of religious behaviour and values have a significant impact on decisions regarding corporate debt, with a significance level of 5% for Christian CEOs on other religions, fraud with a significance level of 1 % and and attendance significance level of 5%, which is consistent with previous findings. The results of this study show consistent evidence that religions and values influence CEOs' behaviour in determining corporate capital structure. In addition, the controls of ROA, StdROA, IOS and Agfirm companies have a significant impact on the debt rasio, with the same coefficients and directions as in previous findings. It is recognised that the results on behaviour based on the religion and religious values of the directors towards capital structure decisions in this study are purely empirical. It is confirmed that developing a theory for this relationship is more challenging than building its existence, as stated by Hilary and Hui (2009) and Jiang et al. (2015), "That religious people seem to avoid risk", and this tends to affect companies' decision making.

Table 5 (Robustness Test)

Regression result of religion and religious values to capital structure

	(1) Coefficient (Std Error)	(2) Coefficient (Std Error)
Constant	0.2147***	0.3103***
	(0.0445)	(0.0523)
$Rel_{CEOIslam\_O}$	0.05667	0.0846
	(0.0142)	(0.0127)
$Rel_{CEOKristen\_O}$	0.0625***	0.0742**
	(0.0143)	(0.0118)
$Fraud_{CEO}$	0.0568*	0.042***
	(0.013)	(0.041)
$Attd_{CEO}$	0.1247*	0.3462**
	(0.045)	(0.0281)
Age_{CEO}	0.0025*	-0.0016
	(0.0014)	(0.0036)
Edu_{CEO}	0.0046	0.0218
	(0.0125)	(0.0518)

Table 5 *(Continued)*

	(1) Coefficient (Std Error)	(2) Coefficient (Std Error)
Edu_{CEO}	0.0046 (0.0125)	0.0218 (0.0518)
SIZE	0.0034 (0.0013)	0.0112 (0.0065)
ROA	-0.1045** (0.0326)	-0.4516*** (0.0136)
SDROA	-0.1446 (0.0132)	0.3056** (0.0158)
IOS	-0.0043 (0.0014)	-0.0475* (0.0246)
AgFirm	0.0015*** (0.0004)	0.0048** (0.0019)
Adjusted R^2	0.558	0.436
No. of Obs Firm-Year	1.386	336

Note: *significant at 10%, **significant at 5%, ***significant at 1%

CONCLUSIONS

CEOs' religion and religious values contribute to different decisions on corporate debt levels (Abraham, 2013; Baxamusa & Jalal, 2014; Jiang et al., 2015). This study contributes to the existing literature with the finding that CEOs' decisions on corporate financing are influenced not only by financial and risk factors, but also by their religious behaviour and values, which can explain decisions on capital structure. The results of the study indicate that Christian CEOs tend to favour a greater degree of debt than those with other religions; it was the view of the Christian reformers (16th Century to 1836) that Christianity should allow interest-bearing debts in obtaining funding (Hilary & Hui, 2009), although some Christians forbid interest on money or usury in their lives. However, these results indicate that there is a non-financial factor affecting CEOs' decisions, namely that their religion is based on beliefs in religious teachings that have been embedded and are reflected in the organizational behaviour of CEOs at the Indonesia Stock Exchange.

Therefore, it is expected that Christian CEOs at the Indonesia Stock Exchange should adopt better corporate governance policies, such as improving the quality of risk management committees, committee independence, and the reputation of audit committees to protect shareholder rights and improve stock market efficiency, in an effort to encourage greater shareholder participation (Stulz & Williamson, 2003). As for Muslim CEOs, they have no significant impact on corporate debts. This is because Muslim CEOs are probably not so obedient to their religious teachings, since

their decisions are also influenced by the behaviour of other board members of the company. Besides, it is also probably due to the small number of companies running sharia-based businesses which are listed on the Indonesia Stock Exchange. This means external funding policy the company's at the Indonesia Stock Exchange, tends to be in the form of loans sourced from conventional banking

It was also found that the religious values of CEOs are reflected in their involvement in fraudulent acts. The involvement of CEOs in fraudulent act tends to make their companies have more debt than other CEOs. The situation is explained by the fact that fraud committed by management, such as overstated sales, repo transactions and corruption tends to be associated with a larger debt ratio. Such a ratio means the company has to bear a heavy burden to fulfil its contractual clauses with creditors/investors, driving it to attempt to manage reported earnings by reducing or increasing profits to provide the impression of better corporate performance. Therefore, to overcome fraud there is a need for good corporate governance management, transparency, accountable financial statements, and fairness in providing debt or loans that do not exceed the maximum limit of debt ratings.

Implications

CEO attendance at the board meetings is positively related to capital structure, implying that debt usage still generates a higher return if compared to the cost of the debt itself. This is because the number of meetings attended by CEOs tends to increase the level of corporate debt in pursuing an optimal capital structure by minimising average capital costs and maximising the value of the company (Kajananthan, 2012). It is also possible that CEOs take more risks in taking advantage of existing investment opportunities and that the creditors feel more secure about the company's loan repayments because of the CEO's attendance at board meetings. The results of this test also indicate that a CEOs' attendance at board meetings shows that they are proactive and participate in strategic decisions, oversee planning, and monitor management's ethical behaviour (Rezaee, 2004), which provides a sense of security to creditors over repayment of what they have lent (Khan & Wasim, 2016).

The limitations of the study are that it measures the CEOs' religion (Islam, Christian or others) by assuming that they have the same level of adherence to their respective religion. In reality, however, some CEOs have stronger beliefs and are more likely to follow religious doctrine than others of the same religion. Another limitation is related to the measurement of fraud variables based on the acts of CEOs who have committed fraud. Using Indonesian positive law, it takes time to declare someone who has allegedly committed a crime as a suspect and to be eventually convicted. Therefore, the data obtained could become invalid soon after the CEO suspected to have committed fraud is free from any criminal charge.

Moreover, the measurement of control variables does not include tangibility, tax, other determinants of corporate governance, such as independent committees, risk management committees or audit committee reputation.

For future research, it would be better if the measurement of CEOs' religiosity were also made by questioning them, as a deeper measurement of religiosity would provide a stronger test. The use of other cultural elements focused on the cultural dimensions identified by Hofstede(2001) would examine of a broader set of non-economic factors.

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Market Structure and Bank Stability: Comparison between Conventional and Islamic Banks in Indonesia

Rachmat Rinaldi and Muhammad Budi Prasetyo*

Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

The purpose of this study is to examine the effect of bank competition on banking industry stability in sharia and conventional banks in Indonesia from 2011 to 2015. Panzar Rosse H-statistic model was used to measure the level of bank competition and the Z-score as a measure of banking stability. The results of this study indicate that both bank competition and stability had a positive relationship. The Islamic and conventional banking industry in Indonesia support the competition stability theory, which states that a competitive industry encourages bank stability because of low adverse selection and moral hazard. The results of this study also show that conventional banks had greater stability consistently than Islamic banks for all bank groups.

Keywords: Competition fragility, competition stability, Islamic bank

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E-mail addresses:
rinaldi03@outlook.com (Rachmat Rinaldi)
m.budi.prasetyo@ui.ac.id (Muhammad Budi Prasetyo)
*Corresponding author

INTRODUCTION

In Indonesia, the financial system is dominated by the banking industry. Therefore, the stability of the banking industry becomes an important area of concern for banking regulators. The banking crisis of 1997 showed that Indonesia's economic system is highly dependent on the banking industry. When the banking system experiences a shock, the economic system feels the impact. Banking regulators in Indonesia (Bank Indonesia until 2013,

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replaced by Financial Services Authority (OJK)) continuously introduce steps to strengthen the stability of the banking system, including policy related to Islamic banking. Since the banking crisis of 1997, the Islamic banking industry in Indonesia has experienced a significant growth. Apart from being supported by many Muslim citizens in Indonesia, an evidence of Bank Muamalat who managed to survive the 1997 crisis had boosted the public confidence in the Islamic banking system. However, since 2014, the growth of Islamic banking in Indonesia has experienced a downturn. Therefore, the Islamic banking Road Map 2015 - 2019 compiled by OJK offers several strategies to improve the growth of Islamic banking in Indonesia, particularly by increasing the number of Islamic commercial banks and Islamic business units.

The number of players in an industry has a significant influence on the market structure of the industry itself. As the number of players in the industry increases, the level of competition in the industry also increases, and vice versa. In the context of the banking industry, increased competition has a significant impact on the stability of the banking system. The literature reflects two different opinions regarding the impact of competition on the stability of the banking system. The first opinion, often called the competition fragility hypothesis, suggests a trade-off between the level of banking competition and the stability of the banking system. Several previous studies have supported this hypothesis, such as Allen et al. (2014), Beck (2008), Chan et al. (1986), Keeley (1990), and Marcus (1984). The competitive pressures banks face cause them to take excessive risks, which lead to a decline in the stability of the banking industry. In a competitive industry, the pressure for profit pushes banks to choose a high-risk portfolio that sends the bank fragility even higher. Also, additional studies (Allen & Gale, 2000; Boot & Thakor, 1993) have stated that the bank in a competitive environment has a lower incentive to perform monitoring due to a low rent. According to Allen and Gale (2005), larger banks can diversify more effectively than smaller banks. Hence, a banking system dominated by several large banks tends to be stronger than a banking system with large numbers of smaller banks. In contrast, the second opinion suggests that the level of banking competition increases the stability of the banking system, often referred to as the competition stability hypothesis (Anginer et al., 2012; Boyd & De Nicoló, 2005; Čihák & Hesse, 2010; Tabak et al., 2013). Although market power can increase bank profitability because banks can charge higher prices, doing so puts consumers at greater risk, thus increasing the likelihood of default. In other words, a risk-shifting paradigm exists in the banking sector, as presented by Stiglitz and Weiss (1981). The global financial crisis showed that larger banks tended to be difficult to monitor due to their complexity and their ability to connect politically with the supervisory body (Johnson & Kwak, 2012).

Islamic banks have significant differences from conventional banks, in

both philosophical view and technical operation. In a reflective view, the purpose of Islamic banks cannot be separated from Islamic economics' major objectives, the achievement of *Falah*, which means the creation of welfare for the world and the hereafter. *Falah* can be achieved if every basic human need is fulfilled by maintaining *maqasid sharia*. Disruption of the stability of the banking system leads to disruption of the economic system, which disrupts the circulation of wealth among humans. Therefore, maintaining the stability of the Islamic banking system is one form of guarding one's wealth. Creating the right sharia banking structure is essential to maintain a strong and stable banking industry that can achieve *falah*. However, not enough evidence exists to support the linkages between type of bank and bank stability (Beck et al., 2013). Even so, the profit/loss-sharing (PLS) feature of these banks can mitigate the risk factor in Islamic banking. PLS protects Islamic banking from interest rate exposure, and PLS-based contracts drive depositors' incentives to monitor all banking activities. Thus, Islamic banks exercise considerable caution in managing depositors' funds. On the other hand, Beck et al. (2013) stated that the PLS feature increased the risk on banks' balance sheets. The existence of financing products with equity-like features creates not only risk of debt but also risk arising from equity. Furthermore, the complexity that exists in adhering to Islamic law may lead to higher operational risks. Also, limited hedging instruments and high-quality liquid assets make for a very limited choice for an Islamic bank to manage such risks, further causing the overall risk to be higher than in conventional banks.

Previous research related to the Islamic banking structure's influence on the stability of the banking system has been carried out. However, such studies have reached different conclusions and reported conflicting results. Some have concluded that a trade-off exists between the banking market structure and the stability of the banking system. Others have suggested the opposite that a competitive banking industry promotes the stability of the banking system. This contradictory result may be due to differences in sample characteristics and the context of the studies. According to Ariss (2010), developing countries are usually highly dependent on their banking sector, while in developed countries the capital markets sector can offset the banking sector.

With this perspective, the purpose of this study is to analyze the impact of the market structure of the banking industry in Indonesia on banking stability. This study makes several significant contributions to the competition/stability-related literature. First, the literature of competition and banking stability contains relatively few studies that include sampling from Islamic banking. Beck et al. (2013) and Čihák and Hesse (2010) measured the level of Islamic banking stability but did not relate it to the market structure of the banking industry. Soedarmono et al. (2011) studied the relationship between competition and banking stability but did not include Islamic

banks as a research sample because of the apparent differences in characteristics from non-Islamic banks (conventional banks). This study includes Islamic banks as a research sample because Islamic banks are in the same market with conventional banks, and both influence the banking market structure in Indonesia. Second, unlike Soedarmono et al. (2011), this study uses Panzar Rosse H-statistic to measure the level of competition in the Indonesian banking industry. Anginer et al. (2012) stated that the use of the Lerner index along with the Z-score resulted in a spurious regression because both the Lerner index and the Z-score used profitability measures. This study also uses a measure of competition from structuring approaches, such as the concentration ratio, to test the consistency of results.

This article is organized as follows: section 2 discusses the literature related to this research topic; section 3 discusses the data and methodology used; section 4 discusses the analysis of the research results; and section 5 presents the conclusion.

Literature Review

Islamic Banking. A bank is a business that offers financial services products in the form of deposits, which the bank can channel in the form of commercial loans (Rose & Hudgins, 2009). Apostolik et al. (2012) divided banking activities into three main activities: (1) fundraising in the form of savings accounts, current accounts, and time deposits; (2) providing financial services such as payment traffic and transfers of funds; and (3) channeling funds in the form of credit. The provision of Islamic financial services is growing rapidly worldwide; although most countries do not yet explicitly support the interest-free economy, the Islamic economy can record growth of 15%-20% per year according to International Monetary Fund (IMF) data. Also, Abduh and Omar (2012) reported that Islamic banking assets were expected to grow at a rate of 15% per year worldwide. This will certainly attract the attention of all countries to create an Islamic economic system, especially given its free-of-crisis nature.

Ayub (2007) stated that the sharia bank could be interpreted as an intermediary financial institution that performed its activities according to the principles of sharia by avoiding activities that contained elements of usury, uncertainty, and gambling. Furthermore, Islam does not recognize debt or commercial loans, but rather engages in partnerships or cooperation (*Mudaraba* and *Musharaka*) under the principle of profit and loss sharing; lending money to others is only possible for social purposes and carries no reward, which is better known as *Qardh* (Antonio, 2000). The prohibition against usury in sharia banking is the main point because, as we know, conventional banks depend on interest as a return on investment. Interest arises as compensation for loss caused by the time value of money or remuneration received on customers' willingness to deposit funds in the bank. Ayub (2007) mentioned that the prohibition against usury meant sharia banks did not

provide loans to make a profit in the form of interest. The Islamic bank channels funds in the form of investments that not only involve the transfer of money but also require risk sharing as a form of partnership.

Chong and Liu (2009) reported that the investor must bear the risk together with the borrower. Since both the borrower and investor have equal power and cannot be blamed for any risk of loss in the business, both parties are equally obligated to bear the loss and share the profit that appears. To do so, Islamic banks apply a profit/loss-sharing scheme in all their products. The fixed interest rate is replaced by a predetermined ratio of profit/loss-sharing between the two parties. Regarding fundraising, the application of *wadiah*-based contracts means that the bank must maintain the value of a saving account but, on the other hand, banks also have no obligation to provide profit-sharing funds to the customer. Meanwhile, the application of a PLS scheme on fundraising, such as a *mudaraba* and *musharaka* contract, requires the losses incurred on the investment to be borne by the investor solely, but the bank is obliged to set aside some of its profits as a profit share for the investor.

Market Structure and Banking Stability. Theories related to the relationship between the banking market structure and the stability of the banking system are divided into two groups: concentration stability hypotheses and competition stability hypotheses. In the concentration stability hypotheses, the lower level of competition causes the banking system to become more stable. According to Beck (2008), a concentrated banking industry means banks have higher market power. The high profits obtained as a result of high market power serve as a buffer when the market is unstable and reduces risky activities. Jiménez and Lopez (2010) used the franchise value hypothesis to explain the theory of concentration stability. According to De Jonghe and Vennet (2008), franchise value is the present value of the company's profit expectations in the future. Banks with greater market power are considered to have a high franchise value and, therefore, high market value because investors think the bank is better prepared to face risk. To maintain a high franchise value, banks exercise caution in taking risks, leading to a more stable banking structure. However, in contrast, the competition stability theory states that a low level of competition creates an unstable banking system. Supporting this theory are Čihák and Hesse (2010), Anginer et al. (2012), and Tabak et al. (2013). The competition stability theory is built on the issues of adverse selection and moral hazard that exist in banking institutions. Banks operating in a concentrated market structure tend to set higher interest rates for debtors, thus triggering the occurrence of adverse selection and moral hazard. High interest rates make low-risk debtors reluctant to borrow funds so that the bank's asset portfolio is dominated by high-risk borrowers and thus more risk. Stiglitz and Weiss (1981) called this phenomenon the risk-shifting paradigm. Ariss (2010) performed a study using a sample in a

country with a dual banking system. The results showed that Islamic banking was less competitive than conventional banking. Beck et al. (2013) concluded that conventional banks operating in countries with a higher market share of Islamic banks were more cost-effective but less stable than Islamic banks.

MATERIALS AND METHODS

Data

This research used financial statement data of commercial banks, including conventional banks, sharia banks, and Islamic business units, obtained from the OJK. Although the Islamic business unit is a business unit under its parent bank, it is regarded as an independent entity and competes in the same market as a full-fledged Islamic bank, so it was included as a sample in this study. For analysis, data of the Islamic banking unit was treated equally as a bank separated from the holding. The number of samples used in this research was 106 conventional commercial banks and 34 Islamic banks. The term "Islamic bank" includes full-pledged Islamic banks and Islamic business units. The financial statements used were from 2011 to 2015, which represented the most recent data available to illustrate the current state of the banking industry in Indonesia. To increase the number of samples, semi-annual financial statements were used. Although not audited, the validity of the financial statements was considered sufficient because the information was reported to the banking authority and published in Indonesian print media. Moreover, the banking industry during this period was relatively stable and did not experience significant problems that interfered with analysis of the hypothesis. Before 2008, a Century Bank case was likely to have had a significant influence on banking behavior and banking system stability.

Research Model

The level of market competition was measured by a nonstructural approach using the H-statistic measure developed by Panzar and Rosse (1987), where the market structure was measured from the income elasticity of the company's cost structure. The H-statistic is estimated using the following equation:

$$LogTR_i = \alpha + \beta_1 W_{1,i} + \beta_2 W_{2,i} + \beta_3 W_{3,i} + \partial_1 Y_{1,i} + \partial_2 Y_{2,i} + u_i \quad (1)$$

$$H = \beta_1 + \beta_2 + \beta_3 \quad (2)$$

where TR is the total bank income, W_1 is the logarithm of the ratio of personnel expenses to total assets, W_2 is the logarithm of the ratio of interest expense or profit sharing to total assets, and W_3 is the logarithm of the ratio of other operating expenses to total assets. Variables Y_1 (ratio of total equity to total assets) and Y_2 (ratio of total credit or financing to total assets) are the control variables. Equation (1) is a cross-section model estimated at every period of study so that the change in the competition level in both the conventional and Islamic banking industry can be estimated. According to

Panzar and Rosse (1987), if H ≤ 0, the form of the market structure is a monopoly market, while if 0 < H < 1, the market structure is a monopolistic competition market and if H = 1, the market structure is a perfectly competitive market. To obtain yearly H-statistics, equations (1) and (2) are estimated every year.

To measure banking stability, Z-score stability measures was used as employed by Boyd and De Nicoló (2005), Berger et al. (2009), Yeyati and Micco (2007), Čihák and Hesse (2010), Uhde and Heimeshoff (2009), Fu et al. (2014), and several other researchers. The Z-score is the ratio of the levels of profitability and bank capital strength to the volatility of bank profitability in each period $\left(\frac{ROA_{it}+ETA_{it}}{\sigma ROA_{it}}\right)$. According to Berger et al. (2009), the Z-score has an inverse relationship with the risk level of the bank, with stable banks with low risk levels having a higher Z-score. The denominator of the Z-score formula is the standard deviation of the return on assets (ROA), where high standard deviations indicate high fluctuations in bank profitability, and vice versa. A stable bank has a low standard deviation of profitability. In this study, the standard deviation of ROA was calculated using ROA data for three years. The empirical model used in this study was adopted from Fu et al. (2014) and Noman et al. (2008), with the following equation:

$$Z_{it} = \alpha + \theta Z_{it-1} + \beta PR_t + \gamma I_i + \sum_{j=1}^{n} \delta_k X_{k,it} + \sum_{k=1}^{n} \vartheta_j Y_{k,it} + u_{it}$$

where Z_{it} is the logarithm natural of the Z-score of banks i in period t, PR_t is Panzar Rosse H-statistic in period t, X_k is the specific bank control variable, and Y_k is the macro and industrial control variable.

To distinguish between Islamic banks and conventional banks, dummy variable I_i was used where 1 represents the Islamic bank sample and 0 represents the conventional bank sample. Following Noman et al. (2018), a lag-dependent variable, Z_{it-1}, was included to capture the persistence of banking stability. Also, to test the consistency of results from equation 3, this study used the approach from Čihák and Hesse (2010), where banks were divided into two groups based on their size which were small banks and large banks. However, unlike Čihák and Hesse (2010), this study used the median value of total assets of each bank group as a cutoff point. The concentration ratio (CR) was used as a benchmark of the Panzar Rosse H-statistic size. A list of control variables used in equation (3) is presented in Table 1.

Table 1
Control variables

Variable	Measurement	Definition
Size	Log (Total Asset)	Bank size at time t
Loan Loss Provision (LLP)	$\frac{Loan\ Loss\ Provision}{Total\ Assets}$	Credit risk for bank *i* at time *t*

Table 1 *(Continued)*

Variable	Measurement	Definition
Net Interest Margin (NIM)	Conventional: $\frac{Interest\ Income - Interest\ Expense}{Total\ Assets}$ Sharia: $\frac{Income\ from\ Financing - Third\ Parties'\ Share\ on\ Returns}{Total\ Assets}$	Bank efficiency
Gross Domestic Product (GDP) Growth	$GGDPt = \frac{GDPt - GDPt-1}{GDPt-1}$	Real GDP growth at time *t*

RESULTS AND DISCUSSIONS

The number of samples used in the study was 1,060 observations for conventional banks (106 banks and 10 time periods) and 340 observations for Islamic banks (34 banks and 10 periods). The "clean" descriptive statistics for all the variables used in the study are displayed in Table 2.

The Z-score variable has a right-skewed distribution because some observations have a very high Z-score. Due to the limited samples, observations with outlier values are not excluded. Winsorizing method is applied to the distribution of existing data to reduce outlier from the data. Table 3 shows that a conventional bank is more stable than an Islamic bank.

Table 2

Descriptive statistics

	Mean	Median	Std Dev	Min	Max
Z-score	40.676	30.179	39.226	-4.127	292.910
H-statistic	0.694	0.675	0.069	0.602	0.819
CR5	0.495	0.495	0.008	0.484	0.504
Size	15.641	15.680	2.280	0.000	20.556
LLP	0.007	0.003	0.019	0.000	0.424
NIM	0.037	0.032	0.022	-0.011	0.254
RGDP	0.027	0.029	0.016	0.006	0.044

Notes: The dependent variable is Z-score based on return on assets. H-statistic is Panzar Rosse H-statistic capturing the degree of bank competition. CR5 is sum of top 5 bank market share. Size is logarithm of bank total assets. NIM is net interest margin to total assets. LLP is loan loss provision to total assets. RGDP is growth of GDP.

Table 3

Z-score conventional vs. Islamic bank

	Conventional Bank	Islamic Bank
All	43.222	32.737
2011S1	33.306	26.493
2011S2	34.277	29.571
2012S1	37.950	45.207
2012S2	45.968	42.931
2013S1	49.229	44.647
2013S2	57.026	35.723
2014S1	46.458	37.273
2014S2	46.009	34.399
2015S1	40.468	17.873
2015S2	41.529	13.252

Within the research period, Islamic banking stability has been most significant since 2015. In that year, Islamic banking performance decreased significantly. Nonperforming financing was significantly above the safe limit established by regulators (5%), and several other indicators also showed unfavorable conditions. Table 2 shows that the range of Indonesian banking stability varies widely, from -4.127 to 292.190, with an average of 40.676. This indicates that although several banks have good stability others operate under a different condition. Banks with a majority of negative Z-scores suffer losses in some research periods, resulting in low ROA and low equity to total assets. In contrast, banks with high Z-scores (above 100) generally have a relatively low standard of ROA deviation. This shows that these banks can maintain stable business conditions.

Figure 1 shows the competition level in the banking industry in Indonesia from 2011 through 2015. Based on the value of the H-statistic, the market structure of the Indonesian banking industry is a monopolistic competition market, which is a market structure in which existing products are homogeneous with slight product differentiation, so some banks still have the opportunity to achieve above normal profits. When measured using a structural approach, that is, the ratio of market share concentration of the five largest banks in Indonesia (CR 5), the five largest banks in Indonesia control about 50% of the industry market share, while more than 100 banks compete for the remaining 50%.

Table 4 shows the regression estimation results from equation (3) using ordinary least squares (OLS) as the estimation method. Using all the samples of conventional banks as well as Islamic banks, the estimation results in Table 4 show that the variable of banking competitiveness as measured using the Panzar Rosse H-statistic has a significant

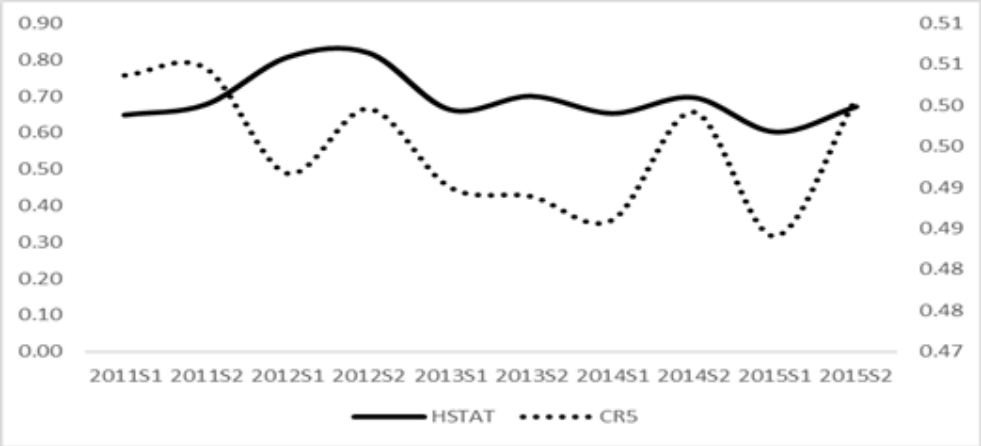

Figure 1. Panzar Rosse H-statistic and CR5 comparison

positive effect on banking stability measured using the logarithm natural of the Z-score. The level of banking stability improves as the level of competition in the banking industry increases. Thus, these findings support the competition stability hypothesis that market competitiveness has a positive effect on the level of bank stability.

According to Stiglitz and Weiss (1981), this is the result of the risk-shifting paradigm where the risk of consumer default becomes lower because the bank tends to provide a relatively lower credit price due to the pressure of competition. In contrast, in a noncompetitive market, banking market forces mean that banks are free to set high credit prices that increase the risk of debtors defaulting. Our findings are consistent with Liu et al. (2012), Noman et al. (2018), and Soedarmono et al. (2011), each of whom use Southeast Asian banks as research samples.

The Islamic dummy variable in Table 4 shows that the variable is significant and negative. That is, in regard to the stability of banks, Islamic banks are more fragile than conventional banks. These findings are consistent with Beck et al. (2013), and Čihák and Hesse (2010) who concluded that Islamic banks' degree of stability was lower than that of conventional banks. According to Beck et al. (2013), these circumstances may be due to the amount of risk faced by Islamic banks being greater than that faced by conventional banks, especially operational risks related to the legality of various transactions under sharia.

To test the consistency of the effect of competition on banking stability as well as the difference in stability level between conventional banks and Islamic banks, we divided the sample into two groups based on assets size: small bank and large bank. Also, measurement of competitiveness was used, which referred to the number of market shares of the five largest banks in Indonesia (CR5). In both samples, Table 4 shows that the variable Panzar Rosse H-statistic remained significant and influenced the stability of banks. These findings suggest

Table 4

Regression model estimation result

	All		Small		Big		All		Small		Big	
Intercept	-0.07		0.2		-0.595	**	2.435		3.7		0.179	
	(-0.389)		(0.561)		(-2.145)		(1.878)		(1.701)		(0.128)	
Lnzscore (-1)	0.823	***	0.813	***	0.793	***						
	(56.133)		(47.13)		(38.365)							
H-Statistic	0.892	***	0.778	*	0.938	**						
	(4.83)		(2.42)		(3.78)							
CR5							-3.76		-5.722		-0.107	
							(-1.409)		(-1.304)		(-0.036)	
Size	-0.02		-0.01		0.032	*	-0.005		-0.02		0.026	*
	(-0.244)		(-0.678)		(2.394)		(-1.039)		(-1.376)		(1.919)	
NIM	1.407	*	-0.239		2.699	**	1.017		-0.944		2.593	*
	(1.944)		(-0.218)		(3.11)		(1.528)		(-0.892)		(2.819)	
LLP	-7.196	**	-14.64	**	-5.815	***	-6.954	**	-14.759	**	-5.717	**
	(5.572)		(-3.061)		(-3.96)		(-3.563)		(-3.189)		(-3.919)	
RGDP	3.222	**	5.65	**	1.321		5.729	***	8.933	***	2.393	
	(3.371)		(3.624)		(1.053)		(4.01)		(4.695)		(1.282)	
Islamic Dummy	-0.127	**	-0.148	***	-0.06		-0.127	**	-0.151	**	-0.078	*
	(-3.028)		(-2.748)		(-1.23)		(-4.168)		(-2.693)		(-1.856)	
R-Square	0.740		0.737		0.728		0.736		0.741		0.724	
Adj-R-Square	0.739		0.734		0.724		0.735		0.739		0.72	
F-Statistic	498.276	***	265.136	***	203.662	***	487.461	***	271.881	***	200.219	**

Notes: The dependent variable is Z-score based on return on assets. H-statistic is Panzar Rosse H-statistic capturing the degree of bank competition. CR5 is the sum of top5 bank market share. Size is the logarithm of bank total assets. NIM is net interest margin to total assets. LLP is loan loss provision to total assets. RGDP is growth of GDP. Islamic dummy is a dummy variable with a value of 1 for Islamic banks and 0 for conventional banks. Estimation carried out using OLS. The t-statistics value is in parentheses. *, **, *** are significant at 10%, 5%, and 1%, respectively.

that the competition stability hypothesis applies to all banks in Indonesia. However, if we use CR5 to measure competitiveness, the level of competition has no significant effect on banking stability.

Table 4 shows that the stability of conventional banks in all bank groups is higher than in Islamic banks. This finding is in contrast to Čihák and Hesse (2010), who concluded that Islamic banks had greater stability than conventional banks in the small bank group and lower stability than conventional banks in the large bank group. The conditions of Islamic banking in Indonesia differ from those of other countries, especially Malaysia. Since the Islamic bank in Indonesia (full-fledged and Islamic business unit) is relatively younger than the conventional bank, the standard deviation of its ROA tends to be high due to unstable business as Islamic banks are still looking for new debtors, finding new customers, and looking for new sources of funding.

The loan loss provision (LLP) variable in both banking industries is statistically significant and has a negative effect on the stability of the banking system, while the effect of the net interest margin (NIM) has varied influences. For the whole sample and smaller banks, NIM has a significant negative impact, while on groups of major banks, NIM has a significant positive impact. Large banks have strong internal resources that enable them to channel credit with low risk under high profit pressure. However, profit pressures in small banks make them increase risky credit distribution, in turn driving their stability even lower. Even so, the level of profitability as measured by NIM and real sector conditions does not have a significant effect on the stability of the banking system. The amount of LLP in a bank is determined by the quality of its existing credit in the bank. When the bank's credit portfolio is dominated by poor-quality credit, the amount of capital provisioning to be provided by banks also increases, thereby reducing the level of bank profitability. Also, the LLP can be used as an indicator of the risk each bank faces. Banks with a low LLP have low credit risk while banks with a high LLP have high credit risk. The macroeconomic (RGDP) variable in both banking industries is statistically significant and has a positive effect on the stability of the banking system. Therefore, a procyclicality condition exists in the Indonesia banking industry. Conventional and Islamic banks increase their supply of credit when the economy is in good condition, and vice versa. The banking regulator must respond to this fact so that the banking industry can provide credit for the economy in bad conditions.

CONCLUSIONS

This study was conducted to determine the influence of banking competition on the stability of the conventional and Islamic banking systems in Indonesia. By using the Panzar Rosse H-statistic, the study found that the structure of the Islamic and conventional banking market in Indonesia took a monopolistic competition market form. Overall, the level of stability of

conventional banks was greater than that of Islamic banks in all groups. The regression results used in this study showed a significant positive relationship between competition and banking stability. This indicates that the results of this study support the competition stability hypothesis. In the competitive banking market, adverse selection and moral hazard of banking customers can be reduced, thereby reducing the risk-taking behavior of banks and ultimately contributing positively to the stability of the banking system.

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The Effect of Earnings-Target Incentive Compensation on Cost Stickiness Behaviour: Evidence from Indonesian Listed Manufacturing Companies

Tami Zagita and Hilda Rossieta*

Department of Accounting, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

The phenomenon in contrast to the traditional cost accounting theory, assuming cost efficiency as the primary objective, is called cost stickiness behaviour. Under the cost stickiness phenomenon, the increase of cost during a revenue-increasing trend is more significant than the decrease in cost during a revenue-decreasing trend (Anderson et al., 2003). This study investigates whether listed manufacturing companies in Indonesia practice cost stickiness behaviour. This study also examines specific circumstances stopping managers from adopting such behaviour and exercising a cost-efficient policy instead. This study hypothesises that generally, managers' practice cost stickiness behaviour to enjoy a double benefit. However, when a level of earning is critical near to losses, managers choose to practice traditional efficient-cost behaviour and cease building a business empire through a cost stickiness policy. Using a sample of 123 manufacturing companies listed in the Indonesian Stock Exchange from 2009 to 2015, empirical models representing the hypotheses were formulated and tested using a linear regression statistic technique. The test delivers empirical evidence consistent with the hypotheses provided. The empirical results also agree with findings regarding the effect of agency-driven incentives, including earnings-target incentive compensation on cost stickiness behaviour.

Keywords: Cost stickiness behaviour, cost efficient behaviour, empire building motive, earnings-target incentive compensation system

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E-mail addresses:
tamizgt@gmail.com (Tami Zagita)
hilda.rosieta@ui.ac.id (Hilda Rossieta)
* Corresponding author

INTRODUCTION

In general, traditional cost accounting theory explains the association between company activities generating revenue (Revenue Generating Activities [RGA]) and

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the related costs (Macintosh & Quattrone, 2010). The cost is either fixed or variable, depending on its driver. Fixed cost is the total cost component that, to a certain extent, would stay stable with the increase of RGA, while variable cost is the cost component that proportionately increases with the rise of RGA, and *vice versa* (Carter et al., 2009; Calleja et al., 2006; Noreen & Soderstorm, 1997). However, the phenomenon of asymmetric cost behaviour suggests that there is an alternative perspective of cost behaviour differing from traditional cost accounting theories. Copper and Kaplan (1998) highlighted the difficulty of adapting costs to changes of RGA, causing the disproportionate changes of the related cost. Banker et al. (2016) found that other factors affected costs behaviour, aside from RGA. Anderson et al. (2003) stated that cost did not change proportionately to RGA; instead, the increase of cost when RGA escalated was higher than the decrease in cost when RGA declined. Consequently, diminishing marginal profit would be higher when revenue is falling compared to increasing marginal profit when revenue is growing. This asymmetric cost behaviour is called cost stickiness (Kama & Wiess, 2011; Subramaniam & Wiedenmier, 2003; Xue & Hong, 2016).

The unique and seemingly irrational behaviour of cost stickiness attracts researchers' interest to investigate explanations for such behaviour. Most previous research focus on providing extensive empirical evidence regarding the asymmetric cost behaviour across countries to examine the generalisability of cost behaviour. Among the countries and contexts covered are United Kingdom, United States, French, and German (Calleja et al., 2006); 39 countries (Kitching et al., 2016); Brazil, Chile, and Mexico (Pamplona et al., 2016); 22 European countries (Prabowo et al., 2017); and Iran (Mohammaddi & Taherkhani, 2017). Indonesia is a member of G20 countries representing approximately 85% of world GDP and two thirds of the population (Mustafa, 2017). However, despite the growing importance of the Indonesian economy in the global context, research regarding cost stickiness in Indonesian context is lacking. Accordingly, understanding managerial cost stickiness in an Indonesian context would increase comprehension of managerial cost behaviour, leading to firm value as investors' primary interest. In the global economy where investors could arbitrate capital market across countries, comprehension regarding factors affecting firm value would be useful.

Some previous research associate cost stickiness behaviour with external factors surrounding the managers and firms. Such factors include culture (Kitching et al., 2016), different systems of corporate governance and managerial oversight across countries (Calleja et al., 2006; Xue & Hong, 2016), and competition (Cheung et al., 2016). On the other hand, some researchers relate the behaviour to internal factors, including organisational capital (Venieris et al., 2015) and intellectual capital (Mohammad & Taherkhani, 2017). However, what makes

managers cease practicing cost stickiness behaviour is hardly found. Cost stickiness is a decision regarding resource level motivated by a personal interest in empire building (Chen et al., 2012) rather than business considerations; hence, it might be harmful to firm value for primary investors' interest. Therefore, understanding factors that affect managers ceasing such practice would have a positive effect on firm value and be beneficial for investors.

This research fills the gap of the cost stickiness research, examining whether Indonesian managers practice such asymmetric cost behaviour and what circumstances make them cease such practices. This study hypothesises that asymmetric cost behaviour is practiced by managers of Indonesian listed manufacturing companies, even though it may compromise companies' earnings levels, as the main shareholders' interest. However, when the managers' self-interest is threatened (when sales are dropped, and the earning level is critical for considering a bonus of the executive incentive system), they tend to cease the cost stickiness practice to ensure their suitability for the earnings-targets-based bonus.

Theoretical Foundation and Hypotheses Development

Cost Stickiness Behaviour and Empire-building Motive in Manufacturing Industry. According to Anderson et al. (2003), traditional models only consider the effects of activity on cost, without considering managers' interest that might influence decisions regarding costs. However, Calleja et al. (2006) found evidence of inconsistency between traditional cost models with their observations of business practice. Their finding aligned with Kallapur and Eldenburg's (2005) study providing evidence where a manager's decision affects companies' cost structure. Accordingly, cost does not always change proportionately with revenue. When the revenue is decreasing, the magnitude of the decreased cost would be lower compared to the magnitude of the increased cost when revenue is increasing. One explanation for the manager's decision to maintain resource levels in declining revenue associates with their interests in building and sustaining the business empire (Chen et al., 2012).

Managers' empire-building behaviour is the tendency of managers to increase the size of the company above the optimal level, to increase their status, power, and prestige (Masulius et al., 2007). For example, managers refuse to cut the labour force in times of declining sales, since it could damage their reputation (Calleja et al., 2006). Managers are reluctant to cut RGA during declining revenue due to their interests. Being a manager of a large company provides many benefits, both financially or otherwise, and cutting resources tends to benefit the shareholders more than the managers; thus, managers tend to avoid cutting off company resources (Betrand & Mullainathan, 2003). Hence, it is the personal interest, not the aim of maximising the firm value that drives managers' decision to maintain resource levels during

declining revenue (Roychowdhury, 2006). Accordingly, Chen et al. (2012) argued that managers' personal interest to maintain building the empire was a driving factor for cost stickiness behaviour. This behaviour is consistent with the perspective of agency costs, in which shareholders' interest does not always align with managers' interest (Jensen & Meckling, 1976).

In addition to managers' interest, Anderson et al. (2003) argued even though the company resource could be reduced quickly, it would be costly to execute and incur high adjustment costs associated with the changing level of activities (Venieries et al., 2015). Accordingly, high adjustment costs create a situation where managers avoid cutting resources proportionately when revenue is declining, especially for companies that highly depend on assets and human resources to generate revenue, like manufacturing companies. Specific types of costs are relatively easy to adjust promptly to the level of revenue, namely: sales, administrative, and general costs. These types of cost are typically most of the overhead cost for any given company. Therefore, although the nature of the cost in manufacturing companies is relatively inflexible (more likely to practice a cost stickiness policy), the companies still have options to adjust the costs proportionately to the change in sales (choose not to practice a cost stickiness policy).

Considering empirical evidences of the previous studies regarding cost stickiness behaviour across countries (Calleja et al., 2006; Kitching et al., 2016; Prabowo & Dirks, 2017; Pamplona et al., 2016; Mohammadi & Taherkhani, 2017), and the opportunity to practice a cost stickiness policy for any given company regardless of the companies' type of industry, the first hypothesis proposed is:

> *H1: Cost stickiness policy (the increase of costs during increasing sales will be higher in magnitude than the decrease of costs during declining sales) is practiced by Indonesian manufacturing listed companies.*

Earnings-Target Incentive System and Cost Stickiness Behaviour.

The agency theory (Jensen & Meckling, 1976) maintains that agency problems exist for two reasons. First, there is a conflict of interest between managers and shareholders. Second, the condition of information asymmetry favourable to managers provides an opportunity for a manager to maximise gain at the cost of shareholders' benefit. One managerial opportunistic behaviour is building a business empire by setting up company resources beyond optimal level, creating idle resources, cost inefficiency, and a low earning level. Managers would enjoy the status, power, perceived competence, and prestige of the business empire. The stronger the incentive for managers' empire building, the greater the cost stickiness behaviour (Chen et al., 2008). To overcome managers' opportunistic behaviour building inefficient business empires, managers' bonuses are linked to the level of company earnings, representing management decisions.

Considering the incentive linked to earning targets, managers tend to quickly cut resources as a response to declining sales, even though the decline is only temporary (Kama & Weiss, 2013). Therefore, when the revenue is declining, managers face two options which are promptly adjusting the cost proportionately to achieving a certain target level of earnings (efficient motive) or holding the cost relatively stable to maintain the business empire (cost stickiness behaviour).

Dierynck et al. (2012) found that when managers had a strong incentive to reach earnings targets, they tended to actively manage earnings levels and cut unused resources, thus decreasing the cost during declining sales. In general, under the earning target incentive system, a yearly bonus is provided to companies that can earn a profit, not a loss. Hence, companies with a low level of earnings or a slight loss would try hard to improve the level of earnings by practicing efficient decision and avoiding the cost stickiness policy. Based on these arguments, the second hypothesis suggested is:

H2: The earnings target incentive system negatively moderates the practice of cost stickiness policy in Indonesian manufacturing listed companies.

MATERIALS AND METHODS

Sample Selection

This research focused on a sampling of all manufacturing companies listed on the Indonesian Stock Exchange (IDX) in 2009-2015, consisting of 123 companies, resulting in 861 firm-years of observation. This research focused on manufacturing companies, since businesses of this type were more consistent with cost stickiness behaviour than other industries (Subramaniam & Weidenmier, 2003). Considering the relatively high proportion of sales, administrative, and general costs in any company that can be promptly adjusted with the change in sales level, the companies still have some discretion to not adopt a cost stickiness policy and adopt an efficient cost policy instead. Table 1 presents the sampling process of this research.

Table 1
Research sampling process

Sample Selection	Year							Total Sample
	2009	2010	2011	2012	2013	2014	2015	
Manufacturing companies listed in BEI	124	128	130	133	138	142	145	940
Manufacturing companies that have not been listed since 2009	0	-4	-6	-9	-14	-18	-21	-72
Number of samples	124	124	124	124	124	124	124	868
Incomplete sample data								-7
Number of samples used								861

To test *H2*, this study classifies the sample into two subsamples (Xue & Hong, 2016). First, a group of companies on the borderline of earning level, having strong incentives to improve profit by practicing efficient decisions, are marked by EAMG = 1; and second, a group of companies without pressures to improve profit, therefore likely to exercise a cost stickiness policy, are characterised by EAMG = 0. Criteria of companies included in subsample EAMG = 1 consist of a company with a rate of return on assets (ROA) of 0-1.5% or an earning change rate of 0-1%. The company including in subsample EAMG = 0 is a company other than those belonging to subsample EAMG = 1. This study used subsample test method instead of interactive method to examine the moderating effect of the incentive system minimising the use of interaction in the empirical model of cost stickiness behaviour, as shown in Model 1 and Model 2. In addition, subsample test method provides better validity of empirical test results, reducing the problem of multi-collinearity associated with an interaction method.

The proportion of two groups of companies with a strong incentive to improve earning levels (efficient cost-oriented) and a group of companies with weak/no incentive (cost stickiness orientated) is presented in Table 2.

Table 2
The proportion of group companies with cost efficient and cost stickiness orientation

Types of sample	Total	Percentage
Types of Sample (Pool)	861	100.0%
Number of samples in Subsample *EAMG = 0	632	73.4%
Number of samples in Subsample *EAMG = 1	229	26.6%

Hypotheses Testing

Hypothesis 1. Empirical model (1) is adapted from Anderson et al. (2003) to test Hypothesis 1. This model shows the effect of sales changes (classified into increasing and decreasing sales) on cost (sales, administration, and general costs) which will detect whether cost stickiness is practiced by manufacturing listed companies in Indonesia. Evidence indicated the existence of cost stickiness when $\beta_1 > 0$ and $\beta_2 < 0$. The research model (1) is as follows:

$$\Delta\, ln\, SGA_{i,t} = \beta_0 + \beta_1\, \Delta\, ln\, REV_{i,t} + \beta_2\, REVDEC * \Delta\, ln\, REV_{i,t} + \varepsilon_{i,t} \text{ (Model 1)}$$

Hypothesis 2. After dividing the sample into subsample EAMG = 1 and EAMG = 0, Model 2 was adopted from Anderson et al. (2003), then four control variables were added, including a combination of several other types of research. The four control variables are assets of intensity, employee intensity, debt intensity, and firm growth

(Xue & Hong, 2016; Kama & Weiss, 2013; Sepasi & Hassani, 2015). The models are tested in each subsample with the following results expectation: i) the sign β_2 has a negative result in the subsample EAMG = 0; while ii) the sign β_2 has a positive result in subsample EAMG = 1. This suggests that firms with strong incentives to achieve profit targets do not practice stickiness-cost policy. The research model (2) is as follows:

$$\Delta\ ln\ SGA_{i,t} = \beta_0 + \beta_1\ \Delta\ ln\ REV_{i,t} + \beta_2\ REVDEC * \Delta\ ln\ REV_{i,t} + \beta_3\ ASINT * REVDEC * \Delta\ ln\ REV_{i,t} + \beta_4\ EMPINT * REVDEC * \Delta\ ln\ REV_{i,t} + \beta_5\ DEBINT * REVDEC * \Delta\ ln\ REV_{i,t} + \beta_6\ TOBQ * REVDEC * \Delta\ ln\ REV_{i,t} + \varepsilon_{i,t} \quad \text{(Model 2)}$$

The notation of variables in research Model 1 and Model 2 are as follows:

1. Dependent variable: Δ $SGA_{i,t}$ = changes in sales, general and administrative costs.
2. Independent variables:
   (a) $REV_{i,t,}$ = change of sales;
   (b) REVDEC = dummy variable; Value 1 if this year sales decrease ($REV_{i,t} < REV_{i.t-1}$), and value 0 if this year sales increase ($REV_{i,t} > REV_{i.t-1}$);
   (c) REVDEC * Δ $REV_{i,t}$ = interaction of dummy variables when sales decline to capture the construct of cost stickiness.
3. Control variables:
   (a) $ASINT_{i,t}$ = asset intensity, measured by the ratio of Total Assets to Total Revenue;
   (b) $EMPINT_{i,t}$ = employee intensity, measured by the ratio of Total Employees to Total Revenue;
   (c) $TOBQ_{i,t}$ = company growth;
   (d) $DEBINT_{i,t}$ = debt intensity, measured by the ratio of Debt to Total Revenue.

Referring to previous research by Kama and Weiss (2013), Xue and Hong (2015), and Sepasi and Hassani (2015), the control variable in Model 2 interacts to consider the effect of cost stickiness accordingly. This research used a regression method with panel data approach. To estimate model parameters with panel data, the best estimate was chosen from the results of three approaches: Pooled Least Square, Fixed Effect, and Random Effect. The classical assumption test was also performed on three classical assumption problems covering multi-collinearity, heteroscedasticity, and autocorrelation.

RESULTS

Descriptive Statistics

Descriptive statistics for the variable used in this research was classified into three groups of the sample (pool sample, cost-efficient orientated companies with EAMG = 1, and cost-sticky orientated companies with EAMG = 0) and is presented in Table 3.

Table 3 shows that the average of pool sample manufacturing companies in Indonesia has increased sales and increased

the cost of SGA in 2009-2015, indicated by the mean of ΔSGA and ΔREV, which was higher than 0 (1.13 and 1.08, respectively). The maximum and minimum values of the ΔSGA variable were 14.74 and 0.33, indicating that some companies experience significant increases and decreases in SGA costs. For variables, ΔREV also has a reasonably variable distribution of data, but the spread of minimum and maximum is as wide as ΔSGA.

Table 3
Descriptive statistics of pool sample, cost-efficient orientated companies (EAMG=1) and cost-sticky orientated companies (EAMG = 0)

Pool Sample (N=861)						
Variable	**N**	**Mean**	**Standard Deviation**	**Median**	**Maximum**	**Minimum**
△SGA	861	1.132	0.538	1.102	14.733	0.331
△REV	861	1.078	0.265	1.090	3.724	0.357
ASINT	861	1.469	1.956	0.997	28.897	0.183
EMPINT	861	0.163	0.220	0.087	1.978	0.004
DEBINT	861	1.012	3.858	0.220	49.262	0.000
TOBQ	861	0.221	0.201	0.206	0.966	0.000
Variable	**N**	**Frequency**		**%**		
		0	**1**	**0**	**1**	
REVDEC	861	609	252	70.73%	29.27%	
Subsample EAMG = 0 (Cost Stickiness Orientated) (N=632)						
Variable	**N**	**Mean**	**Standard Deviation**	**Median**	**Maximum**	**Minimum**
△SGA	632	1.138	0.609	1.098	14.733	0.331
△REV	632	1.070	0.240	1.097	2.485	0.357
ASINT	632	1.509	2.110	0.978	28.897	0.183
EMPINT	632	0.158	0.227	0.085	1.978	0.004
DEBINT	632	0.841	3.020	0.191	48.327	0.000
TOBQ	632	0.217	0.202	0.201	0.937	0.000
Variable	**N**	**Frequency**		**%**		
		0	**1**	**0**	**1**	
REVDEC	632	447	185	70.73%	29.27%	
Subsample EAMG = 1 (Cost Efficient Orientated) (N=229)						
Variable	**N**	**Mean**	**Standard Deviation**	**Median**	**Maximum**	**Minimum**
△SGA	229	1.115	0.249	1.107	3.545	0.614
△REV	229	1.101	0.324	1.073	3.724	0.413
ASINT	229	1.361	1.445	1.040	14.773	0.196
EMPINT	229	0.175	0.201	0.097	1.344	0.005
DEBINT	229	1.482	5.531	0.263	49.262	0.000
TOBQ	229	0.232	0.198	0.220	0.966	0.000
Variable	**N**	**Frequency**		**%**		
		0	**1**	**0**	**1**	
REVDEC	229	161	68	70.31%	29.69%	

After dividing the sample into subsample EAMG = 0 and subsample EAMG = 1, there are differences in characteristics in sales changes and SGA cost changes. The mean variables of ΔSGA and ΔREV in the subsample of Cost-Sticky Orientated Companies (EAMG = 0) are 1.14 and 1.07, consecutively, while in the subsample of Cost-Efficient Orientated Companies (EAMG=1) are 1.12 and 1.10, respectively. The data show that in the subsample of companies with EAMG = 0 changes the SGA cost amount more than the companies in the subsample with EAMG = 1, when the change of sales at companies with EAMG = 0 is lower than companies with EAMG = 1. This descriptive statistical result provides an initial indication regarding the negative moderating effect of a target earnings incentive system on the cost stickiness behaviour.

Empirical Test Results

The regression results of Model 1 to test *H1* are presented in Table 4.

Table 4 above indicates that Model 1 is significant, with the p value less than 1% and with an Adjusted R-squared value 11.62%. Cost stickiness behaviour is shown through the existence of asymmetric cost behaviour, which is different when companies experience an increased and decreased change of revenue. The empirical result suggests that consistent with traditional costing, the shift of SGA cost is positively associated with changes in revenue, as shown by the positive sign of the regression coefficient Δ lnREVi,t of 0.54, with the p value less than 1%. However, when the categorical variable REVDEC, in which differentiated increased and decreased changes of revenue comes into play, the positive sign of lnREVi,t turns to a negative sign of REVDEC*Δ lnREVi,t, with the value of -0.29 at p-value less than 5%. This means that when considering the sign of revenue change (i.e., decreased or increased), the SGA cost change is lower compare to the change of revenue. Concerning the total effect (i.e., increased and decreased changed), the sum of $\beta_1 + \beta_2$ is 0.25, is lower compared to the impact of revenue change without considering the decreased change (coefficient regression of β_1, only, is 0.54), therefore SGA cost is sticky in case of revenue decreased. Hence, *H1* is supported by the empirical test results of the data.

Table 4
Empirical test results of Model 1

Variable	Predicted sign	Coeff.	Prob.	Sig
Δ ln $REV_{i,t}$	+	0.540	0.000	***
REVDEC * Δ ln $REV_{i,t}$	-	-0.289	0.053	*
N (*Number of Observations*)		861		
Adjusted R-Squared		0.1162		
Prob. (F-Statistic)		0.0000		

*** Sig ≤1%; **Sig ≤5%, *Sig ≤10%

The empirical result means that when a decreased change of revenue comes into play, some cases occur in which SGA cost is still rising, even though the revenue is declining. Therefore, cost stickiness policy is practiced by Indonesian manufacturing listed companies. The result is consistent with studies conducted by Kitching et al. (2016) in 39 countries, and by Prabowo and Dirks (2017) in 22 European countries. The result is also consistent with previous studies' findings in the UK, the USA, France, and Germany (Calleja et al., 2006); in Brazil, Chile, and Mexico (Pamplona et al., 2016); and in Iran (Mohammadi & Taherkhani, 2017). An explanation for such behaviour is the managers' intention to build a big business empire for personal interest (opportunistic motive), where they tend to increase company size and cost beyond an optimal level, even during a decreased change of revenue (Chen et al., 2012). Accordingly, a big business empire provides some personal benefits for managers, like status, power, and prestige (Masulius et al., 2007). They also provide financial and nonfinancial benefits (Betrand & Mullainathan, 2003). Empirical results for Hypothesis 2, tested by Model 2, are presented in Table 5.

Empirical Model 2 is formulated to test *H2* regarding the moderating effect of the earnings-target incentive compensation system. Empirical results of the subsample EAMG = 0 (Cost-Sticky Orientated Companies) show a similar pattern with the results of the pool sample test of Model 1. Accordingly, β_1 has a positive sign, with the value of coefficient regression equal to 0.445, yet, β_2 has a negative sign, with

Table 5
Empirical test results of Model 2

Variable	EAMG = 0 (Cost stickiness Orientated)				EAMG = 1 (Cost Efficient Orientated)			
	Predicted sign	Coeff.	Prob	Sig	Predicted sign	Coeff.	Prob	Sig
$\triangle$ ln $REV_{i,t}$ (β_1)	+	0.445	0.000	***	+	0.483	0.003	**
REVDEC * $\triangle$ ln $REV_{i,t}$ (β_2)	-	-0.221	0.044	**	+	0.690	0.044	**
ASINT * REVDEC * $\triangle$ ln $REV_{i,t}$	-	-0.011	0.011	**	-	-0.382	0.000	***
EMPINT * REVDEC * $\triangle$ ln $REV_{i,t}$	-	-0.016	0.284		-	-0.888	0.186	
DEBINT * REVDEC * $\triangle$ ln $REV_{i,t}$	+	0.030	0.000	***	-	0.125	0.000	***
TOBQ * REVDEC * $\triangle$ ln $REV_{i,t}$	-	-0.004	0.495		-	-0.389	0.025	**
N (*Number of Observations*)	632				229			
Adjusted R-Squared	0.0934				0.2411			
Prob. (F-Statistic)	0.0000				0.0000			

*** Sig ≤1%; **Sig ≤5%, *Sig ≤10%

the value of coefficient regression equal to -0.221; both are significant at p-value ≤ 1%. The result indicates that companies with a sufficient level of earnings tended to practice a cost stickiness policy, so that the managers enjoyed the benefit of both a big business empire and bonuses related to an earnings-target incentive compensation system.

Contrarily, the empirical result of the subsample EAMG = 1 (Cost-Efficient Orientated Companies) shows positive signs of both β_1 (coeff. reg = 0.483) and β_2 (coeff. reg = 0.690), significant at p-value ≤ 5%. Understandably, managers of companies with a borderline level of earning, close to losses, would try hard to improve earnings, so that they are eligible for the bonus. The value of β_2, which is higher than β_1, indicates that when companies consider a decreased change of revenue, the magnitude effect of a change in cost is even stronger. Therefore, empirical evidence suggests that this group of companies does not practice cost stickiness policies, preferring cost-efficient policies.

Comparing the empirical test results of both subsamples suggest that an earnings-target incentive compensation system has a moderating effect on the practice of cost stickiness policies in listed Indonesian manufacturing companies. Accordingly, when a manager faces a low level of earning, close to losses, forcing a choice between: (i) the benefit of a big business empire and (ii) the bonus associated with an earnings-targeted incentive compensation system, the empirical evidence shows that they choose the second option. In general, the finding is consistent with Kama and Weiss' (2013) study, which stated that agency-driven incentives were the main consideration for managers' cost adjustment decisions.

CONCLUSIONS

Cost stickiness behaviour relates to managers' decisions regarding the change of cost allocation associated with a change of revenue. Conventional cost accounting stated that the change of cost allocation is proportionately and positively associated with the change of revenue. However, the proportionate association only works in the case of an increased revenue change, not in the case of a decreased revenue change (Anderson et al., 2003). This asymmetric cost behaviour is called cost stickiness (Kama & Wiess, 2013; Subramaniam & Wiedenmier, 2003; Xue & Hong, 2016).

This study finds that in general, listed manufacturing companies in Indonesia are adopting the cost stickiness policy, consistent with the findings in other countries, including United Kingdom, United States, France, and Germany (Calleja et al., 2006); Brazil, Chile, and Mexico (Pamplona et al., 2016); and Iran (Mohammadi & Taherkhani, 2017). A main argument for a manager to adopt such behaviour is related to the personal benefit of a big business empire (Chen et al., 2012), including status, power, prestige (Masulius et al., 2007), and reputation (Calleja et al., 2006). However, managers choose to adopt cost-efficient behaviour to improve earnings when the companies' earnings are borderline close to losses. An earnings-target incentive compensation system

moderate managers' motivation to build the business empire through cost stickiness behaviour. This finding is consistent with Kama and Weiss' (2012) study regarding the effect of agency-driven incentives on cost stickiness behaviour.

Findings of the study generate some research implications. First, the existence of asymmetric-cost behaviours among managers of listed Indonesian manufacturing companies suggests that earnings-target incentive compensation has significant limitations in providing incentives for managers to practice cost-efficient behaviour. Second, when earnings are far beyond the critical level (close to losses), managers could enjoy the double benefit, namely: enjoying the advantages of being managers of big corporations by practicing cost stickiness behaviour, and, at the same time, receiving the incentive associated with a suboptimal level of earnings. The double benefit of managers means excessive agency costs for stakeholders. Therefore, companies' oversight functions should monitor and control cost stickiness behaviour and encourage managers to practice cost-efficient behaviour consistently, and not only when they face the threat of losing incentives due to a critical earnings level.

This study has identified the unfortunate circumstances (critical earnings level near losses) that motivate managers to adopt cost-efficient behaviour so that they would be rewarded through an earnings-target bonus. However, this study has limitations mainly from the level of critical earnings stated intuitively. Further studies should be developed to identify the critical earnings levels while considering the context of this study. Also, further studies should explore factors of incentive compensation, motivating managers to practice cost-efficient policies.

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The Role of Peripheral Conference Service in Developing Revisit Intention to Host Destination

Christina Lipuringtyas Rudatin*, Tengku Ezni Balqiah and Sofjan Assauri

Graduate School of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

The meeting, incentive, conference, and exhibition (MICE) industry continues to grow, contributing significantly to a destination's economy. This article examines how the perceived quality of the peripheral conference service, as a supporting program for a conference, affects the loyalty of participants at the conference host destination. This perceived quality may also affect the conference participants' novelty-seeking behavior in moderating the influence of the strength of satisfaction on intentions to revisit the conference host destination. The unit of analysis of this study was international conferences in Bali, Surabaya, and Jakarta. The data were collected from 214 respondents via a questionnaire. Questions were answered using a 7-point Likert scale and analyzed using a partial least squares structural equation model (PLSSEM). The results showed that the perceived quality of the performance of the peripheral conference service had a positive influence on conference participants' satisfaction with the destination. A subsequent positive effect was also found for intention to revisit the conference host destination. However, novelty seeking is not proven to have an effect in moderating the influence of the power of satisfaction on the intention to revisit the conference host destination.

Keywords: Novelty seeking, peripheral conference services, revisit intention, satisfaction

INTRODUCTION

The era of globalization has increased competition in various fields, including competition among various locations

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E-mail addresses:
rudatin27@gmail.com (Christina Lipuringtyas Rudatin)
tebalqiah@yahoo.com (Tengku Ezni Balqiah)
fdila96@yahoo.com (Sofjan Assauri)
* Corresponding author

Current affiliation
Tengku Ezni Balqiah and Sofjan Assauri
Department of management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

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around the world. The term "place" is used to describe all types of territories (e.g., city, part of a city, an area, a province, a state) (Kotler et al., 1993). Marketing a place means designing an area to meet the needs of the target market. It is said to be successful when society and businesses feel comfortable and the expectations of visitors and investors are met (Kotler & Gertner, 2002). Place, in the context of tourism, is often referred to as a destination. Cooper et al. (1998) defined a destination as a focus of various facilities and services designed to meet the needs of travelers. Traditionally, the destination is perceptible as a geographic area (e.g., state, island, and city) (Buhalis, 2000). It is a place people travel to and where visitors choose to stay for some time, to gain an exciting experience with various features, attributes, and attractions owned by the destination (Leiper, 1995).

International tourist arrivals in 2016 based on United Nations World Tourism Organization (UNWTO) data number 1.235 billion (UNWTO, 2017). The amount has contributed to 3.1% of world gross domestic product (GDP) for a total contribution of 10.2% of world GDP (World Travel & Tourism Council (WTTC), 2017). In general, visitors traveling to a destination consist of two groups: business and non-business travelers (Kotler et al., 1993). Visitors who come to a place for business purposes (e.g., meeting, incentive, conference, and exhibition [MICE]) are referred to as business travelers. Those aiming for leisure or non-business activities are called leisure travelers (Buhalis, 2000). Business traveler activities are generally somewhat tied, as they are determined by the involvement of the business traveler in the organizational agenda of the organizers of meetings, incentives, conferences, and exhibitions (Davidson, 1994). However, visitors to a destination often combine business activities with pleasure (Buhalis, 2000). Destinations that can offer a combination of efficiency and security in meetings, as well as leisure opportunities, tend to be preferred by convention participants (Buhalis, 2000).

The research into customer loyalty is widely discussed in the service marketing field. This is also discussed in the fields of tourism and destination loyalty (Barsky & Nash, 2002; Baker & Crompton, 2000; Backman & Crompton, 1991; Chen & Tsai, 2007; Hutchinson et al., 2009; Som & Badarneh, 2011). Although research related to destination loyalty has been widely discussed, this study is more interested in the leisure traveler (Baker & Crompton, 2000; Chen & Tsai, 2007; Hutchinson et al., 2009; Suzan, 2012; Som & Badarneh, 2011). Previous research on the loyalty of conference participants has focused on the core conference program, rather than the peripheral conference service (Ro & Um, 2006; Severt et al., 2007).

To date, research is limited regarding how the role of peripheral conference service improves the loyalty of conference participants to travel to the conference destination. Hence, this research fills a gap in the literature. More specifically, this study explains a phenomenon that has not gotten much attention: how a peripheral conference service from a conference in a destination can make the conference

participant a business traveler in the first visit at a conference destination and a leisure traveler in the future.

Literature Review and Research Framework

Destination Loyalty. Oliver (1997) defined loyalty as a firm commitment to repurchase or re-patronize products or services favored in the future, thereby causing repeat purchases of the same brand over and over again, although situational influences and marketing efforts had the potential to cause switching behavior. A destination can also be defined as a product. Travelers can visit or recommend the destination to friends and family (Yoon & Uysal, 2005).

The loyalty of tourists to the destination is important because the nature of the tourism product means that the destination must be selected without any chance of the consumer trying before buying (McKercher et al., 2011). The high level of risk of having an unpleasant experience is usually associated with attempting to visit a new destination. The risk becomes smaller when returning to a known destination (McKercher et al., 2011). Therefore, risk-averse behavior encourages the emergence of loyalty to a destination. Moreover, retaining existing customers costs far less than winning over new customers (Fornell & Wernerfelt, 1987). Loyal visitors can become ad agencies through word-of-mouth (WOM) advertising if they talk about the destination to their network of friends, family, and other potential customers (Shoemaker & Lewis, 1999).

Peripheral Conference Service. A peripheral conference service is a component associated with the main program of the conference (Ro & Um, 2006). Few studies have been conducted in this area and none has connected the perceived quality of the performance of the peripheral conference service to the loyalty of conference participants to conference destinations (Ro & Um, 2006; Severt et al., 2007). Severt et al. (2007), in their research into the evaluation of participants on the organization of a conference, suggested three influential factors that were activities, opportunities, and education benefits. Activities and opportunities included in a conference often consist of travel and special programs for the families of participants (Mair & Thompson, 2009). The findings support the previous opinion that recreational activities contribute to participating in a conference (Witt et al., 1995).

According to Parasuraman et al. (1991), a core service is the expectation associated with a service or product. Education benefits are the core service (product) of a conference (Severt et al., 2007). The peripheral service is a service or product related to the core service (Bitner et al., 1990; Crosby & Stephens, 1987; Suprenant & Solomon, 1987). Ro and Um (2006) evaluated host conference destination attributes and revealed that three factors were considered important for conference participants: physical factors, environmental factors, and program factors. Environmental factors (e.g., landscapes, exotic climates, cultures) are closely related to peripheral

conference services that are associated with incidental / sub-events, travel and cultural activities, and business centers (Ro & Um, 2006). Conference participants' evaluations of host-destination attributes include cultural activities, pre- and post-conference tours, recreational activities, and culinary activities (Crouche & Weber, 2002; Ro & Um, 2006). The results of this study indicate that the peripheral conference service is a factor associated with the main program (education program) that can affect the tendency of participants to visit the destination.

Baker and Crompton (2000) studied festivals and assessed the quality of the performance of an event based on an assessment of festival visitors. Four dimensions are considered: (1) generic features (program characteristics), (2) specific entertainment features, (3) information sources (e.g., printed programs, street maps, program implementation information), and (4) comfort amenities (related to participants' comfort during the program). The dimensions of the festival are similar to the dimensions of the peripheral conference service proposed by Ro and Um (2006) (i.e., the linked incidental or sub-event dimensions). These include many activities (e.g., pre- and post-conference tour, entertainment, food, beverages, and other recreational activities). This dimension is similar to the generic features and specific entertainment features found in Baker and Crompton (2000). The travel and cultural information dimension refers to information about the travel and cultural program (Baker & Crompton, 2000). A business center provides convenience facilities equal to the comfort amenities at the festival.

Satisfaction. Some studies have examined the antecedents that have resulted in the intention of a repeat purchase (Backman & Crompton, 1991; Cronin et al., 2000; Petrick et al., 2001). The results of the various studies show that satisfaction, quality/performance, and other variables are predictors of consumer loyalty. The greater the satisfaction that consumers feel, the greater the desire to repurchase products or services which have been consumed. This feeling also increases the desire to influence others to become customers. Satisfaction is the visitor's perception of the difference between the expectations before a travel experience and the experience after traveling (Deng & Pierskalla, 2011; Oliver, 1980, 1997). In the context of tourism, satisfaction with the experience gained contributes greatly to the emergence of loyalty to destinations (Alexandris et al., 2006; Bramwell, 1998; Oppermann, 2000; Pritchard & Howard, 1997).

Crompton and Love (1995) stated that consumer satisfaction was related to the emotional state of the consumer's mind after exposure to an opportunity (in this research, the peripheral conference service). Satisfaction can be influenced by social-psychological conditions (e.g., mood, need) and can be perceived by travelers (e.g., conference participants) at new destinations and events (e.g., climate, social interactions in groups, dinner), where such matters are outside the service provider's

control (Baker & Crompton, 2000; Crompton & Love, 1995). Therefore, hypotheses 1 and 2 in this study are:

H1: The higher the quality of the performance of the peripheral conference service perceived by conference participants, the stronger the satisfaction felt by conference participants toward the conference destination.

H2: The stronger the satisfaction felt by conference participants toward the destination, the greater the intention of participants to revisit the conference destination.

Novelty Seeking. Many tourists seek a new experience through their travel (Lee & Cromptom, 1992). Therefore, novelty seeking is considered an important part of one's motivation to travel and influences the travel decision-making process (Crompton, 1979; Petrick, 2002). A person may be satisfied at a destination, but not necessarily return to the same destination (Baker & Crompton, 2000; Hui et al., 2007; Shoemaker & Lewis, 1999). Research has found that novelty seeking influences revisiting intentions, as compared with satisfaction (Assaker et al., 2010; Bigne et al., 2009).

In this study, novelty seeking is defined as a desire for new and different experiences (Hirschman, 1984). Novelty seeking is related to the degree of difference between current perceptions and previous experiences (Jenkins, 1969; Pearson, 1970). In the marketing context, novelty seeking is related to variety seeking, which is the consumer's tendency to shift from ever-made choices (Ratner et al., 1999). The results of the research conducted by Hirschman (1984) on the role of novelty in the search for experiences, as cited by Lee and Crompton (1992), suggested that travelers might differ genetically in their desire to seek or gain new experiences, which could manifest as different types of tourists. Some tourists are high novelty seekers and some are low novelty seekers. Someone who has a novelty-seeking tendency rarely returns to the same tourist destination (Cohen, 1979; Lee & Crompton, 1992). Therefore, hypothesis 3 is:

H3: The higher the novelty seeking tendency of the conference participants, the lower the effect of satisfaction on the intention to revisit the host conference destination.

Value Co-Creation. The service-dominant (S-D) logic approach used in this study describes the process of the value of co-creation in the research model. S-D logic indicates that value and value creation are at the core of understanding this concept (Vargo et al., 2008). In the traditional view, which uses the concept of goods-dominant (G-D) logic, the parties that create the value are the manufacturers. The nature of the value-in-exchange is a utility, based on values that are embedded in a resource, the output of a work process, and the values that are in a single entity, at a given point in time. These values can be exchanged with other entities (e.g., the amount to be paid by

the customer) (Groonros, 2013). However, with emergence of the S-D logic concept, public opinion has shifted to a more holistic perspective that recognizes value in the context of customer experience (Heinonen et al., 2009).

Furthermore, some researchers acknowledge that the value-in-use can also be seen as value created in the context of the value-in-context (Chandler & Vargo, 2011; Vargo & Lusch, 2008). The S-D logic approach has been modified (Vargo & Lush, 2016). The changes made are based primarily on the value creation that originally moved between the producer and consumer (Vargo & Lusch, 2008). This change became known as the involved actor or the actor-to-actor (Vargo & Lush, 2016). In the context of a place, every individual who visits a region has a role in helping to create the value of the place. Various aspects of individuals are reflected in the areas visited. In turn, the characteristics of the region can also change the concept of individual visitors themselves or in conjunction with others (George & George, 2004).

MATERIALS AND METHODS

Figure 1 shows the research framework (model) of this study, which displays the antecedents of revisit intention in the conference destination. This model also exhibits first-order formative latent dimensions of the perceived quality performance of peripheral conference service (PQPPCS) and first-order reflective latent dimensions of satisfaction.

Study Site

Three events in three destinations were chosen for this study. The first event was the World Cultural Forum (WCF) held on

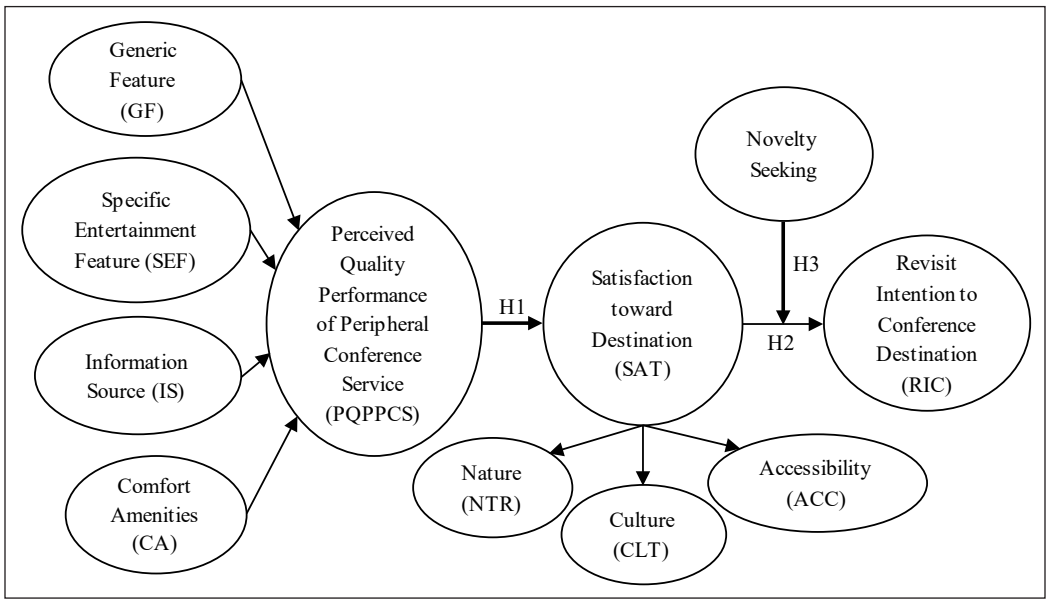

Figure 1. Research framework (model)

24-27 November 2013 in Bali, with the theme "The Power of Culture in Sustainable Development." The peripheral conference service activities consisted of a welcome dinner at Garuda Wisnu Kencana with original Balinese food dishes and a Kecak dance performance. The performance was spectacular and involved hundreds of dancers; the participation of delegates from various countries line up and dance to the strains of the Bali gamelan. Also, a world ethnic music festival featured ethnic music from various countries, but most of the ethnic music originated in various regions of Indonesia (not just Bali). A post-conference tour involved visiting a tourist village and a subak farm on the Subak World Heritage Tour. The second event was the 5th Regional reduce, reuse, recycle (3R) Forum in Asia and the Pacific held on 25-27 February 2014 in Surabaya with the theme of "Multilayer Partnerships and Coalition as the Base for 3R's Promotion in Asia and the Pacific." The peripheral conference service activities consisted of a cultural performance at the opening ceremony and the welcome dinner at city hall in the evening with the mayor of Surabaya as the host, with a typical menu of East Java and other Indonesian dishes; the participants were entertained with gamelan and dance typical of East Java. Participants also visited one of the townships in Surabaya and saw how well the 3R program was implemented; the local people greeted the participants. The third event was the 41st International Federation of Asian and Western Pacific Contractors Association (IFAWPCA). The conference was conducted by the Indonesian Contractor Association and held in Jakarta on 2-5 March 2014 under the theme "Infrastructure for a Better Future." The peripheral conference service activities consisted of the opening ceremony on 2 March 2014 with cultural performances and, in the evening, a welcome dinner held at the Grand Hyatt Hotel Jakarta ballroom, with musical entertainment and a fashion show featuring batik from various cities in Indonesia. A gala dinner was hosted by the Jakarta government at the Ballroom Jakarta Theater. The gala dinner featured traditional Indonesian songs, with the singers wearing traditional Indonesian dress. A post-conference tour was held to visit the old city and Taman Mini Indonesia Indah and to shop in Thamrin City.

Research Method

This research used the survey method. Data were collected using a questionnaire (Christiensen et al., 2011; Zikmund, 2003). The population of this study was participants in international conferences held in three cities in Indonesia: Jakarta, Bali, and Surabaya. The approach used to estimate the relationship between the constructs was SEMPLS. The data were processed by using SmartPLS 2.0. SEMPLS uses a variance-based approach to predict structural relationships between constructs (Hair et al., 2014; Hair et al., 2011). The multigroup analysis approach was used to test the moderating effect of novelty seeking because, like variety seeking, novelty seeking involves the same basic concept that consumers seek the optimal level of stimulation that affects their behavior in

making choices (Assaker & Hallak, 2013; Hebb & Thompson, 1954). In addition, everyone has a different level of novelty seeking tendency (Assaker & Hallak, 2013). The respondents were divided into two groups based on their tendency to seek novelty. The first group was for low novelty seekers and the second group for high novelty seekers.

RESULTS

Data for all 214 respondents from the three conferences were evaluated by using analysis of variance (ANOVA) to examine whether significant differences existed in respondents' perceptions. The respondents were then combined as the results showed no significant difference between the total perceptions of the respondents in each conference.

The results of the validity test of indicators and constructs showed that all indicators had a standardized loading factor greater than 0.5, indicating that all indicators were valid (Hair et al., 2011). The reliability testing results illustrated that latent variables had the value of average variance extracted (AVE) > 0.5. The composite reliability variables had the values of alpha ≥ 0.7 (Hair et al., 2011; Nunnally & Bernstein, 1994). All indicators on the latent variables were reliable or able to measure the construct. Table 1 shows the results of formative model testing of the perceived quality of performance of the peripheral conference service where the four dimensions of generic feature (GF), specific entertainment feature (SEF), information source (IS), and comfort amenities (CA) significantly contribute to the formation of PQPPCS, where the T-statistic value of each dimension is > 1.96 at the significance level of $\alpha = 0.05$ and the original sample values of GF (0.393), SEF (0.268), IS (0.219), and CA (0.212).

Furthermore, in the case of SAT latent measurements, Table 2 shows that satisfaction is reflected by accessibility (ACC) with an original sample value of 0.948, culture (CLT) with an original sample value of 0.903, and nature (NTR) with an original sample value of 0.916, where each dimension has a T-statistic value >1.96 at the significance level of $\alpha = 0.05$.

The test results on the direct effect of the construct indicate that *H1* and *H2* are supported by the data (see Table 1).

Table 3 shows a positive influence of perceived quality performance of peripheral conference service (PQPPCS) on satisfaction (SAT). The results show

Table 1
Formative dimensions of PQPPCS

Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Standard error (STERR)	T-statistics (|O/STERR|)
GF → PQPPCS	0.393	0.392	0.005	0.005	82.513
SEF → PQPPCS	0.268	0.269	0.006	0.006	43.367
IS → PQPPCS	0.219	0.219	0.005	0.005	41.426
CA → PQPPCS	0.212	0.213	0.004	0.004	54.996

Table 2
Reflective dimensions of SAT

Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Standard error (STERR)	T-statistics (|O/STERR|)
SAT → ACC	0.948	0.948	0.005	0.005	206.016
SAT → CLT	0.903	0.903	0.007	0.007	120.448
SAT → NTR	0.916	0.915	0.004	0.004	211.491

Table 3
Hypothesis testing of direct effect

Hypothesis		Coefficient	Standard error (STERR)	T-statistics (|O/STERR|)	Conclusion
H1	PQPPCS -> SAT	0.8812	0.0023	385.8779	Supported
H2	SAT -> RCI	0.8121	0.0033	247.0351	Supported

that the path coefficient is 0.8812, with a t-value (t-statistic) higher than t-table value of 1.960 at a significance level of $\alpha = 0.05$. This rise means that the perceived quality of the peripheral conference service (PQPPCS) has a positive and significant influence on satisfaction (SAT). The results are consistent with the hypothesis that the higher the quality of the performance of the peripheral conference service perceived by conference participants, the greater the satisfaction felt by the conference participants to the host destination. The result supports *H1*.

Table 1 shows that the most powerful dimension that contributes the PQPPCS is the generic feature (GF) with an original sample estimate value of 0.387 and a t-statistic value of 223.642 (>1.96). This indicates that how the conference participants feel about the environmental atmosphere, such as natural scenery, climate, culture, food, and drink may enhance their perception toward the quality of peripheral conference service. The results for the effect of satisfaction (SAT) on the intention to revisit the host city (RCI) show that the path coefficient is 0.8121, with a value of 247.034 (Table 3). The value is higher than the t-table value of 1.960 at the significance level of $\alpha = 0.05$. This increase means that the effect of SAT on RCI is positive and significant. The results are consistent with *H2*, which says that the greater the satisfaction felt by conference participants during activity in the host city, the greater participants' interest in returning to the destination city of the conference. The result supports *H2*.

The satisfaction of participants is strongly reflected by the accessibility (ACC) of the host city of the conference (Table 2). The value of the original sample is 0.948. Accessibility concerns the distance of travel, direct flights, and the ease of obtaining a visa. This means that the conference participants are satisfied because the participants did not find a problem with the distance from the country of origin to the host destination city.

The results for *H3* show that the novelty seeking construct had no moderating effect. The result presented in Table 4 shows that

the t-count value is 1.816 (<1.96), with a 0.05 significance level, meaning that the data do not support hypothesis 3. This means there is no difference in the influence of satisfaction toward revisit intention among participants with high novelty seeking compared to low novelty seeking.

Table 4
Moderating effect of novelty seeking

Moderation	High (2)		Low (1)		t-count	Conclusion
	Original sample (O)	Standard error	Original sample (O)	Standard error		
	Θ_1	Se(θ_1)	(θ_2)	(Se θ_2)		
SAT -> RCI	0.8157	0.0036	0.8065	0.0036	1.815696	Not supported

DISCUSSIONS

The findings of this study indicate that the conference participants perceived the atmosphere of the environment (e.g., local people, landscapes, climate, culture, food, and beverages) presented during the peripheral conference service (Crompton & Love, 1995) to be interesting. The participants felt that the attraction of the destination and friendliness of the local people (when participants visited one of the townships in Surabaya and saw how the well 3R program was implemented, the participants were greeted by the local people) were memorable and they had high quality perceptions toward them. This study shows that the co-creation value for the peripheral conference service program was formed through the involvement of various parties.

The results of this study confirm Foundation Premise 6 (Axiom 2) of the service-dominant logic, stating that a variety of actors creates the value. This always involves the role of the conference participants regarding the beneficiaries that are active in the co-creation value (Vargo & Lusch, 2016). The findings also show that the participants in all three cities of conference destinations were satisfied because they did not find any problem with the distance from the country of origin to each city. Jakarta and Bali are two conference destinations with direct access from more than 30 countries. In contrast, Surabaya, with only two international direct flights (Malaysia and Singapore), has good connectivity with Bali and Jakarta.

In the perspective of the consumption process, the behaviors of travelers visiting a destination are divided into three stages: before the visit, during the visit, and after the visit (Ryan, 2002; William & Buswell, 2003). Before the visit, conference participants received an agenda of conference activities, including peripheral conference services. This developed their expectation that further influenced their evaluation toward the quality of the peripheral conference service program. The conference participants' satisfaction meant the difference between the expectations of conference participants

before attending the peripheral conference service program and the experience after attending the conference and peripheral conference service program.

The participants were satisfied with the conference city because they felt the experience during the peripheral conference service was more than they expected. This means the results of this study strengthened Oliver's (1980) expectancy-disconfirmation theory. The value felt by the conference participants increased, while finding easy access to the conference host destination and during the trip around the host conference city. Conference participants enjoyed interacting with local residents and fellow conference participants.

In the context of relationship marketing, conference participant satisfaction is often a pre-requisite for a successful long-term relationship (Han et al., 2009; Terawatavong et al., 2007; Whittaker et al., 2007). This is because satisfaction is perceived as an emotional state; it is the response of the consumer experience (in this case, conference participants) in perceiving a service (Chen et al., 2008), which can cultivate trust. A visitor can subsequently develop a commitment (Garbarino & Johnson, 1999; Verhoef, 2003) to be loyal to the host conference destination. These results further strengthen the commitment and trust theory in relationship marketing.

The results of testing hypothesis 3 show that the novelty seeking construct has no moderation effect. The influence of conference participants' satisfaction on their intention to revisit the conference destination is not influenced by their tendency to seek new situations (novelty seeking). This can be explained by Welker's (1961) opinion that the perception of novelty depended on the duration of the stimulus exposure. The stimulus exposure provided through the programs in the peripheral conference service is only in the short term. It is given as part of the entire conference program, prior to the conference (city tour), during the conference activities (e.g. gala dinner), and after the conference (e.g., post-conference tour). In short, this duration may cause the novelty seeking tendency of conference participants. The results reveal that it does not have an effect on the power of satisfaction to influence the participants' intentions to revisit the conference host destination.

CONCLUSIONS

The activity of the peripheral conference service was able to develop visitor loyalty in the form of an intention to cross-buy. This means a change in the buying motivation, where the conference participants who first visit an area and intend to attend the conference have the intention to revisit the conference destination for leisure purposes. The results of this study provide managerial implications. Destination marketers can encourage the selection of MICE destinations in Indonesia to host international conferences or other international MICE activities by subsidizing or fully supporting the organizing activities of the peripheral conference service (e.g., welcome ceremony, gala dinner, pre- and

post-conference tour, and cultural night) as part of the destination marketing strategy. Few studies have been conducted on this topic.

The central government, through the Ministry of Tourism and local governments, has not allocated a significant amount of its budget for promotion of destinations in the form of program support. Support for the implementation of peripheral conference services provided at this time is new in the framework of the government. It is a matter of concern and has not been used as a competitive and well-designed destination marketing strategy. In the future, Indonesia is expected to be visited by many business travelers who will be interested in revisiting Indonesia for leisure and bringing their family and friends. They are tourists who may have high spending power, which is expected to increase the number of foreign tourist arrivals and have large economic impacts.

This study has a few limitations. The focus of the study was not concern for the difference in perception in each type of activity in the peripheral conference service, for example, whether a difference exists in the perception of conference participants at a dinner (welcome dinner, gala dinner) compared to a conference tour. If the differences can be further investigated, the results may have implications for the kind of peripheral conference service programs that might influence both the participants' satisfaction and their intention to return to the conference host destination.

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The Orientation of Microfinance Regarding Group-Lending Strategy: Delphi and Analytic Network Process Evidence

Ali Sakti[1]*, Zaäfri Ananto Husodo[2] and Viverita Viverita[2]

[1]Graduate School of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

[2]Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

The objective of this paper is to determine the dominant orientation of microfinance providers in serving poor and micro-small enterprises through the use of group-lending approaches. The research analysed the decision-making processes undertaken by microfinance providers in their conduct of group lending. Recent developments in microfinance practice, in which the focus on achieving financial sustainability (commercial orientation) dominates, are leading to a shift away from the sector's original socially orientated mission. This research is therefore aimed at addressing a developing gap in the study of financial intermediation with respect to the orientation of microfinance. Complexity in the relationships between causal and mediating factors, together with random environmental noise, causes difficulties in determining intangible and immeasurable parameters. Taking these conditions into consideration, this study employed Delphi and analytic network process (ANP) approaches as its methodology. Based on Delphi–ANP analysis of four main aspects of microfinance – objective, outreach, services, and impact, this study revealed that, in general, the social orientation of microfinance institutions still existed in their group-lending strategies.

Keywords: Commercial orientations, financial intermediation, group lending, mission drift, microfinance, microfinance orientations, microfinance mission, social orientations

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E-mail addresses:
ali.sakti31@ui.ac.id, alisakti@gmail.com (Ali Sakti)
viverita@ui.ac.id (Viverita)
z.husodo@ui.acid (Zaäfri Ananto Husodo)
* Corresponding author

INTRODUCTION

Group lending (also known as the joint-liability lending model) is a form of loan scheme which is offered to individual customers but in which individual-member difficulties such as problems with repayments are solved at the level of

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the group of borrowers (Armendáriz de Aghion & Morduch, 2000). In addition to being able to reduce costs, group lending provides a set of dynamic incentives for financial institutions to channel credit to micro and small enterprises. These incentives include (i) successful members bear the repayment (joint) liability of group members who encounter payment problems (Stiglitz, 1990); (ii) the ability of the group to select appropriate peers to join (Besley & Coate, 1995); (iii) the ability of the group to impose sanctions (peer sanctions) on group members who are unable to pay their obligations (Che, 2002); (iv) providing social bonds (social collateral) that encourage group members to pay their obligations in order to maintain their social status in the community (reputational effect) (Besley & Coate, 1995; Woolcock, 2001); (v) providing mutual monitoring (peer monitoring), so that group members are not negligent in paying their obligations (Varian, 1990); and (vi) encouraging customers to pay their obligations (enforcement) aided by group mechanisms (Wenner, 1995).

Brau and Woller (2004) identified polarisation in microfinance development paradigms, namely the institutionist paradigm versus the welfarist paradigm. The group supporting the institutionist paradigm argue that the main focus of microfinance institutions is financial self-sufficiency, while the group supporting the welfarist paradigm focus on achieving depth of outreach. Morduch (2000) and Von Pischke (1996) revealed a trend towards the trading-off of financial-self-sufficiency targets against depth-of-outreach targets, in which financial self-sufficiency represented the profit or commercial orientation of microfinance institutions and depth of outreach represented their social orientation. However, according to Brau and Woller (2004), the evidence for this tendency is relatively sparse. Thus, this study aims to fill gaps in the existing studies of financial intermediation with respect to the orientation of microfinance. Assuming that genuine microfinance institutions were initially established to help the poor improve their welfare, this study seeks to find out whether mission drift occurs in microfinance institutions in their use of group-lending strategies; that is, if there is a shift from social orientation (focusing on achieving depth of outreach) towards commercial orientation (focusing on achieving profit or financial self-sufficiency). This research analyses microfinance orientation in terms of various aspects that have been of concern to previous research projects, such as objectives and incentives for group lending (Attanasio et al., 2013; Lehner, 2009) and internal aspects of microfinance institutions, such as products and services, outreach, impact, regulation and policy (Brau & Woller, 2004).

The need for financial services, particularly access to credit for the poor and micro-small businesses, has not been met by formal financial institutions such as banks. According to the theory of financial intermediation, the provision of credit access is influenced by the ability of banks to acquire information about borrowers (Boyd & Prescott, 1986; Diamond, 1984). Diamond (1984) stated that when the

depositors delegated the monitoring of fund usage to a bank as intermediary, the bank would seek borrowers who could provide better business information in order to obtain a return in accordance with the bank's contract with the owners of the funds.

Group Lending in Microfinance

Microfinance institutions tend to provide financial access (particularly credit) to informal business groups as they have better information on the informal business environment than formal financial institutions such as banks. Because of the high levels of asymmetric information existing between members, group-lending strategies are among the most effective innovations in the field of microfinance (Stiglitz, 1990; Varian, 1990). Such strategies have several advantages, including (i) low default rates due to joint liability; (ii) reduced transaction costs due to the group mechanism, cheaper service and efficient human resources; and (iii) relatively cheap overall costs (Adam & Ladman, 1979; Besley & Coate, 1995; Che, 2002). The concept of delegating authority from principal to agents in monitoring the use of funds, put forward by Diamond (1984), forms the basis of group-lending practices in which financial institutions delegate control of the use of funds to groups (of clients).

Orientation and Mission Drift in Microfinance Institutions

As mentioned above, it appears that microfinance institutions are exhibiting mission-drift tendencies in terms of shifts from social orientations (depth of outreach) to commercial orientations (financial sustainability) (Abrar & Javaid, 2014; Mersland & Strøm, 2010; Serrano-Cinca & Gutiérrez-Nieto, 2014). The underlying causes of mission drift within microfinance institutions include (i) the entry of the banking sector and other financial institutions into the microfinance sector (Hoque et al., 2011); (ii) non-conducive microfinance-industry regulation (Copestake, 2007; Rosenberg, 2009); and (iii) the developing preference of microfinance institutions to focus on financial self-sufficiency (Abrar & Javaid, 2014).

Serrano-Cinca and Gutiérrez-Nieto (2013) mentioned that those microfinance institutions exhibiting drift were relatively more orientated towards financial sustainability and served fewer micro-enterprises than microfinance institutions that were still orientated towards poverty alleviation (centred microfinance institutions). Von Pischke (1996) revealed that there was a trend towards trading-off between financial-self-sufficiency targets and depth-of-outreach targets. Thus, a focus on commercial orientation suggests that microfinance institutions pay more attention to their institutional conditions, while a focus on social orientation suggests that they pay more attention to serving the poor as their clients. Access to finance, especially credit, is currently also provided by financial institutions, both banks and microfinance institutions, that follow sharia (Islamic) principles. Islamic microfinance institutions are judged to have moral and

operational advantages that can be utilised as an alternative to conventional financial practices, especially in serving micro businesses or poor people (El Hawary & Grais, 2005). From the moral perspective, sharia principles encourage microfinance institutions to care for the poor. The profit-sharing contract used in sharia-based financing makes Islamic microfinance institutions more concerned with the business conditions of their micro-business customers than other types of lenders (Obaidullah, 2010).

Measurement of Microfinance Orientation

There is no consensus on how to measure the mission-drift phenomenon (Serrano-Cinca & Gutiérrez-Nieto, 2013), though there is some research into mission drift using a variety of parameters; for example, (i) Mersland and Strøm (2010) and Abrar and Javaid (2014) used the parameter of average loan size correlated with the profit earned by microfinance institutions; (ii) Cull et al. (2007) used a parameter for the percentage of women borrowers; and (iii) Hermes, Lensink and Meesters (2011) used a parameter for the percentage of rural borrowers. Serrano-Cinca and Gutiérrez-Nieto (2014) proposed a new parameter created by combining the three preceding parameters. This study uses databases derived from microfinance institutions operating in Indonesia.

The practice of microfinance is complex in terms of the relationships between causal and mediating factors and is subject to random environmental noise and idiosyncratic factors. As a result, the difficulties arising in determining intangible and immeasurable parameters require a specific methodology able to accommodate these conditions. The required methodology must accommodate variations in the application and the complexity of interactions in the microfinance industry (Brau & Woller, 2004). As a result of these characteristics, which lead to a lack of data for developing statistical models, an expert-system-based approach can be considered as a method for identifying and examining the preferences of microfinance institutions (Serrano-Cinca & Gutiérrez-Nieto, 2013). Taking these conditions into consideration, this study selected the Delphi and analytic network process (ANP) approaches as its methodological bases. The Delphi approach is a technique for achieving concurrence of opinion concerning particular knowledge solicited from experts, while ANP is a sophisticated decision-making method used to measure relatively the ratio of the composite priorities (tangible and intangible factors) of a given individual ratio. Hence, the Delphi approach is used to identify the dominant factors of various microfinance aspects based on social and commercial orientation, and ANP is used to determine the dominant orientation of microfinance.

MATERIALS AND METHODS

The Delphi technique was employed as a method for building consensus by using a series of questionnaires to collect data from a panel of selected experts delivered over

multiple iterations (Hsu & Sandford, 2007). The stages of the Delphi process include the following: (i) determination of the expert panel; (ii) preparation of the questionnaire; (iii) delivery of the questionnaire and feedback; and (iv) analysis of results. The submission of the questionnaire and provision of feedback or responses consists of a number of rounds, depending on the consensus process (Hsu & Sandford, 2007). According to Saaty (2001), ANP is a general theory used to measure relatively the ratio of the composite priorities of a given individual ratio scale. The results of these measurements reflect the relative magnitude of the effects of interacting or interrelated factors. The main advantage of this model is its ability to treat dependencies and feedback systematically by accommodating both quantitative and qualitative factors.

Rater Agreement

In the traditional Delphi approach, the expert consensus is the final agreement drawn from the discussions conducted by the experts. However, in practice, it is difficult to find an agreed time and place for all experts, and adjustment is therefore made by taking rater agreement as a measure of expert consensus (Habibi, Sarafrazi & Izadyar, 2014; Schmidt, 1997). A rater agreement is a measure that shows respondents' level of agreement (R1-Rn) to one aspect of a problem. The tool used to measure rater agreement is Kendall's W coefficient of concordance (W: $0 < W \leq 1$). If the W test value is 1 ($W = 1$), it can be concluded that the assessment or opinion of the respondents has a perfect fit. However, when the value of W is equal to or close to 0, the existence of discrepancies among the respondents' answers is implied or varied answers indicated (Ascarya, 2005). Schmidt (1997) provided guidance for assessing Kendall's W coefficient of concordance. A Kendall's W coefficient of concordance of 0.7 indicates a strong agreement of the respondents' answers.

The first step in calculating Kendall's W is to rank and sum every answer:

$$R_i = \sum_{j=1}^{m} r_{i,j} \quad (1)$$

The average value of the total ranking is as follows:

$$\bar{R} = \frac{1}{n}\sum_{i=1}^{n} R_i \quad (2)$$

The sum of deviations squared (S) is calculated by the following formula:

$$S = \sum_{i=1}^{n}(R_i - \bar{R})^2 \quad (3)$$

Hence, the obtained Kendall's W is:

$$W = \frac{12S}{m^2(n^3 - n)} \quad (4)$$

where m is the number of experts, r is the value of ranks and n is the number of factors.

Eigenvector

The ratio scale showing the priority scale of each factor in the ANP model is obtained based on the eigenvector number of an expert judgement. Generally, the use of a

pair-wise comparison to compare between pairs of aspects or between pairs of factors can be written in a matrix showing the values of the comparisons. Through this matrix, the priority scale can be created based on the eigenvector number, as the eigenvector shows the ranking of the vectors present in the matrix system. In the ANP approach, a pair-wise comparison is completed not only between factors on a single aspect but also for different factors of the aspect, in which case the ANP matrix becomes more complicated (a super matrix), as shown in Figure 1.

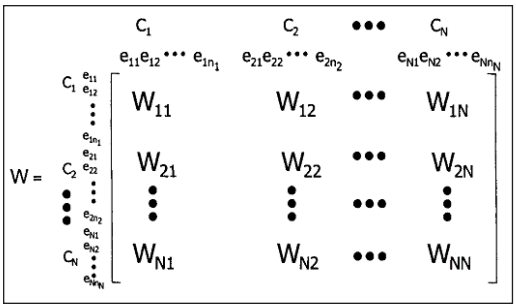

Figure 1. Super matrix of ANP (Saaty & Vargas, 2006)

Using a simple nxn matrix (Figure 1), the following matrix equation is developed:

$$Aw = \lambda w \quad (5)$$

Where A is the matrix, w is the eigenvector and λ is the eigenvalue. The eigenvector and eigenvalue in an nxn matrix are used to prove the linearity of the matrix. Furthermore, equation 5 can be re-written as follows:

$$(A-\lambda)\, w = 0 \quad (6)$$

Since λ is a scalar quantity, the identity matrix (I) is equal to 1, thus becoming

$$(A-\lambda I)\, w = 0 \quad (7)$$

The eigenvalue and eigenvector are calculated using matrix determination:

$$\det(A-\lambda I) = 0 \quad (8)$$

The eigenvector w reflects the priority ranking of the factors in each aspect or for the aspect at a certain level.

Consistency in ANP

In order to determine the robustness of ANP results, consistency ratio (CR) can be used as the parameter. CR is the ratio between the consistency index (CI) and the random index (RI). Using super-decision applications, CI is obtained when inputting data to calculate the eigenvector relationship between elements and clusters. The eigenvector results in each relationship will be considered consistent if CR does not exceed 10% (Saaty, 2008).

$$\lambda_{max} = \frac{1}{n}\sum_{i=l}^{i=n} \frac{i^{th} entry\ in\ Aw^T}{i^{th} entry\ in\ w^T} \quad (9)$$

$$C.I. = \frac{\lambda_{max}-n}{n-1} \quad (10)$$

$$CR = \frac{CI}{RI} \quad (11)$$

where n = number of objects; A = initial matrix of expert judgement; and WT = eigenvector value matrix in row format.

Data

In this study adjustments were made to the Delphi method in its early stages in compiling questions in the questionnaire and in classifying the factors reflecting commercial and social orientations, based on previous research by Brau and Woller (2004), Serrano-Cinca and Gutiérrez-Nieto (2013), Schreiner (2002), and Woller, Dunford and Woodworth (1999). The expert panels for this study comprised the following: (i) practitioners of savings and loans cooperatives with at least five years experiences of practising group lending; (ii) regulators in the microfinance sector (Financial Services Authority – Otoritas Jasa Keuangan (OJK) and the Ministry of Cooperatives and SMEs); and (iii) scholars (PhD holders) and consultants who had more than five years' experience of group-lending practices in microfinance in Indonesia (see Table 1 and Appendix 1).

Table 1
Expert panel for Delphi and ANP

Experts on panel	Number in Delphi	Number in ANP	Background
Regulators	3	2	BI, OJK, and Ministry of Cooperatives and SMEs
Academics	4	3	UNPAD, UIN, UNAIR and UIK
Consultants	2	1	Tazkia Micro Center and GrameenReflika
Cooperative practitioners			
Conventional	10	12	KSP
Sharia	10	14	KSPPS/BMT
Total	29	32	

RESULTS

The first phase of the Delphi approach was to identify the important commercial and social factors in each imperative aspect considered to be a significant decision variable in group-lending practices. The identification of factors and the classification of aspects of the decision-making system used in group lending for microfinance are based on previous studies by Serrano-Cinca and Gutiérrez-Nieto (2013), Brau and Woller (2004), Schreiner (2002) and Woller et al. (1999).

The classifications of microfinance aspects are (i) factors that are in line with the objectives of the institution (objectives); (ii) the impacts of group lending (impacts); (iii) the services that are provided by group lending (services); and (iv) the outreach of group lending (outreach). The results of the identification of the important factors of group-lending practice based on the Delphi approach are presented in Table 2. However, this does not show the Delphi results for all identified factors. The most important factor is determined using the mean rank derived from expert judgements. The ranking value of each factor is between 1 and the number of factors identified. A ranking of 1 indicates that the factor is the most important.

Table 2
Delphi results

Commercial objective cluster (n = 11)	3rd mean ranking	Social objective cluster (n = 15)	3rd mean ranking
Peer selection	3.2222	Business discipline community	3.8889
Enforcement	3.4444	Social solidarity	4.2222
Peer monitoring	3.8889	Quality of community	5.2222
Regular meeting	4.4444	Positive social value	5.2222
Joint liability	4.8889	Business opportunity	6.1111
Social collateral	5.2222	Social involvement	6.6667
Kendall's W	0.412	Kendall's W	0.3315
p-value	0.00000034	p-value	0.00000066
Commercial outreach cluster (n = 8)	3rd mean ranking	Social outreach cluster (n = 14)	3rd mean ranking
Number of client/member	3.1111	Poorest of the poor	2.6000
Coverage	3.1111	Poor and poorest	3.2000
Reaching sustainable business	3.3333	Poor	3.3000
Reaching prospective business	3.6667	Near poor and poorest	3.4000
Increase average loan size	4.5556	Near poor and poor	4.1000
Increase total loan	5.2222	Near poor	5.0000
Kendall's W	0.3039	Kendall's W	0.5881
p-value	0.0006	p-value	2.94E-09
Commercial Service Cluster (n = 6)	3rd mean ranking	Social Service Cluster (n = 10)	3rd mean ranking
Mentoring for discipline	1.5000	Credit for new business	2.8000
Saving/deposit	2.2000	Business coaching	3.3000
Progressive lending	3.5000	Business empowerment program	3.9000
Micro insurance	3.8000	Basic necessities/provisions	4.1000
Competence coach	4.7000	Subsidised credit	5.0000
Consumptive lending	5.3000	Credit of capital goods	5.4000
Kendall's W	0.4779	Kendall's W	0.3843
p-value	0.0000091	p-value	0.00000094
Commercial impact cluster (n = 10)	3rd mean ranking	Social impact cluster (n = 14)	3rd mean ranking
Income increase	2.1111	Togetherness	2.9000
Business Scale	3.4444	Sustainable income	4.4000
Deposit increase	3.8889	Self-improvement	5.4000
Reserve fund increase	5.1111	Quality of life	6.3000
High rate collectability	5.1111	Self-employed business	6.4000
Loyalty	5.6667	Having dignity and confidence	6.8000
Kendall's W	0.443	Kendall's W	0.2374
p-value	0.0000416	p-value	0.0004083

Notes: n = total number of identified factors

In Table 2, the most important factor in each group factor is determined by using the mean ranking. This mean ranking must meet the consensus level of the expert panel shown by Kendall's W coefficient of concordance. The Delphi approach's results from the third round show a moderate number in the Kendall's W values (consensus level) in all factor groups. In all rounds, p-values smaller than 0.05 or X^2 are significant at α = 5%. This means that the level of agreement on the results of the identification of factors in each group of factors is significant. A lower mean-rank number signifies a more important factor. The process of reaching an agreement or consensus stopped at the third round because almost all experts were no longer willing to change their opinions. In the third round, the Kendall's W coefficient of concordance reveals there is a sufficient number of agreements that are close to the average agreement, based on Schmidt's (1997) guidelines for assessing Delphi consensus. The significant rater-agreement figures, based on the Kendall's W majority, did not reach a figure greater than 0.7, at which point they would be judged to have a strong agreement level based on Schmidt's (1997) guidelines.

Practice in microfinance has been characterised by its diversity resulting from divergent community profiles, business types, cultures and geographic locations. The selection of six factors from the identified factors was achieved by considering the minimum number of factors identified in a group of factors. All identified factors are presented in Figure 2. The important factors in the identified commercial- and social-orientation groups were utilised in the ANP measurement.

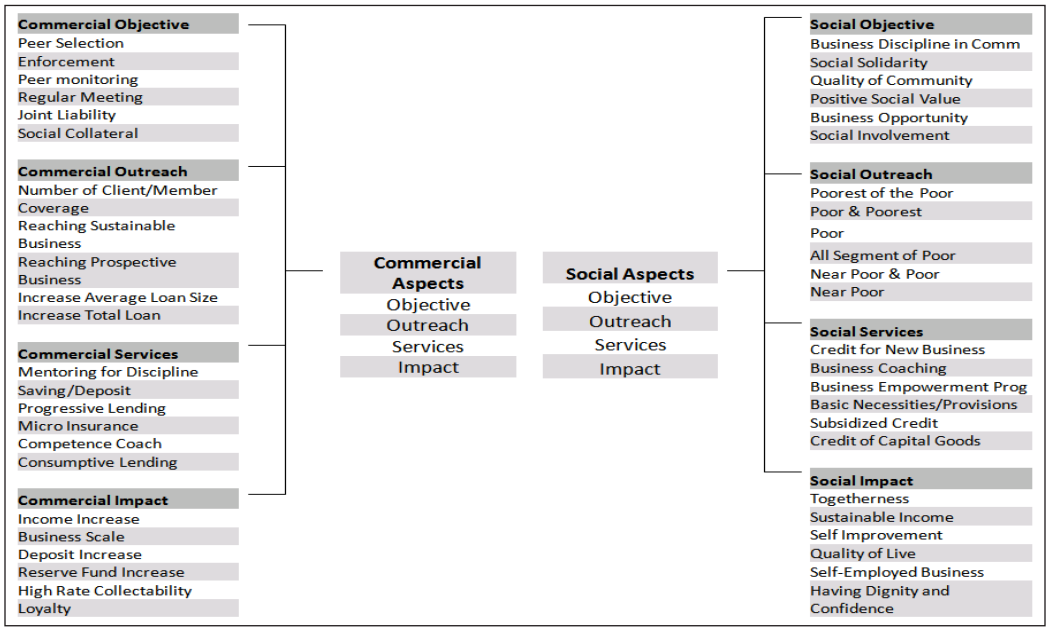

Figure 2. Delphi identification factors and ANP model

In the final phase, the ANP procedure is applied using the identification results for the six most important factors for each of the commercial and social orientations. The dominant orientation measurement result for group-lending practice for each of the four aspects is shown in Table 3. The rater agreement (Kendall's W) for the group of panel experts is relatively high, which confirms a high level of consensus. A smaller than 0.05 ($\alpha = 5\%$) chi-squared value and p-value indicates that significant agreement occurred, with the exception of the expert group of scholars. The maximum consistency ratio (CR) of 1.6% indicates the robustness of the ANP results. The eigenvector of social orientation (0.6008) exceeds the eigenvector of commercial orientation (0.3992) with a moderate level of Kendall's W coefficient of concordance (0.4900). The eigenvector of the expert group of sharia practitioners shows the highest number for a dominant social-orientation eigenvector (0.6347) with the highest Kendall's W coefficient of concordance (0.7347). Based on the eigenvector for the ANP parameter, it is found that social orientation dominates in each group of experts. These findings are supported by the results for all aspects of social orientation, in that they dominate all aspects of commercial orientation. Table 3 also shows that the social-orientation eigenvector for the non-practitioner experts (regulators, academics and consultants) is the lowest (0.5173), with a weak level of Kendall's W coefficient of concordance (0.1111). The chi-squared value and p-value exceed 0.05 ($\alpha = 5\%$), indicating that insignificant agreement occurred. This might reflect the lack of understanding of non-practitioner experts of group-lending practice in microfinance.

Table 3
ANP results

Orientation	All experts	Non-practitioner experts	Sharia practitioner experts	Conventional practitioner experts
Commercial orientation	0.3992	0.4827	0.3653	0.3683
Social orientation	**0.6008**	**0.5173**	**0.6347**	**0.6317**
W	0.4900	0.1111	0.7347	0.4900
X2	14.7	0.67	10.29	4.9
p-value	0.000126	0.414216	0.001341	0.026857
Aspect				
Commercial objective	0.12051	0.12285	0.11955	0.11877
Social objective	**0.13466**	**0.12629**	**0.13815**	**0.13669**
Commercial outreach	0.12236	**0.12855**	0.11972	0.12048
Social outreach	**0.12462**	0.12089	**0.12520**	**0.12578**
Commercial services	0.11986	**0.12260**	0.11830	0.11968
Social services	**0.12784**	0.12259	**0.12939**	**0.13264**
Commercial impact	0.11895	0.12286	0.11794	0.11711
Social impact	**0.13121**	**0.13337**	**0.13175**	**0.12884**

Based on the eigenvector numbers for ANP, and comparing all factors (Table 4), it can be seen that the factors in each aspect of the social-orientation group relatively dominate the commercial-orientation group. Table 4 demonstrates the most important factor for each of the orientation aspects and these results confirm that the social factors in each aspect dominate the commercial factors. Based on the eigenvectors for the factors within an aspect and compared to conventional microfinance, Islamic microfinance is relatively emphasised in the various factors as the main variable for consideration. In the social-outreach aspect, Islamic microfinance prioritises the poor (the poorest of the poor and poor people) more than conventional microfinance. However, in the commercial-impact aspect, conventional microfinance places greater emphasis on financial impact than Islamic microfinance. These results therefore also provide strong evidence for the social orientation of Islamic microfinance.

DISCUSSIONS

The consistency of microfinance institutions in terms of social orientation is seen in their objectives, outreach, services and impacts. In terms of objectives, microfinance institutions are still relatively more motivated by the intention of empowering the poor and micro-small businesses rather than by achievement of their own financial self-sufficiency. They are also more motivated by social impacts than financial impacts. These results differ from previous studies such as those conducted by Mersland and Strøm (2010) and Abrar and Javaid (2014), but are consistent with those of Cull et al. (2007) and Serrano-Cinca and Gutiérrez-Nieto (2014). In particular, for the commercial-purpose aspects it can be concluded that financial intermediation in the microfinance sector using group-lending strategies follows the same principles as intermediation in formal financial institutions such as banks. High levels of asymmetric information that can lead to other risks in the microfinance sector, such as adverse selection, costly audits and moral hazards, are mitigated by group-lending strategies that rely on group mechanisms encouraging credit enforcement, peer selection and meeting routines (regular meetings). Group mechanisms minimise the moral-hazard risk of members because the group conducts intra-group surveillance and thus avoids members' good names being tarnished by the particular activities of individuals. Peer selection reduces the risk of adverse selection; the group recruits the best members because it has to bear the credit-payment difficulties of problem members. Furthermore, the focus of microfinance institutions on the depth of their outreach, rather than on breadth of outreach (large numbers of customers) or breadth of geographic service area, provides evidence that their goals are consistent with their social mission of providing service for the poor in order to alleviate poverty, rather than on achieving their own financial self-sufficiency. Brau and Woller (2004) stated that socially orientated microfinance institutions focused on the depth of outreach,

Table 4
Eigenvectors for ANP comparing all factors

COMMERCIAL					**SOCIAL**				
Commercial objective	**All experts**	**Non-practitioner experts**	**Islamic practitioner experts**	**Conventional practitioner experts**	**Social objective**	**All experts**	**Non-practitioner experts**	**Islamic practitioner experts**	**Conventional practitioner experts**
Peer selection	0.0221	0.0160	0.0198	**0.0240**	Business discipline community	**0.0303**	0.0197	**0.0318**	**0.0352**
Enforcement	**0.0239**	**0.0162**	**0.0228**	0.0237	Social solidarity	0.0279	**0.0204**	0.0307	0.0270
Peer monitoring	0.0208	0.0157	0.0205	0.0199	Quality of community	0.0198	0.0133	0.0203	0.0202
Regular meeting	0.0221	0.0157	0.0209	0.0234	Positive social value	0.0251	0.0141	0.0216	0.0228
Joint liability	0.0150	0.0090	0.0189	0.0122	Business opportunity	0.0153	0.0106	0.0134	0.0165
Social collateral	0.0165	0.0111	0.0167	0.0154	Social involvement	0.0163	0.0081	0.0203	0.0150
Commercial outreach					**Social outreach**				
Number of clients	**0.0235**	**0.0192**	**0.0226**	0.0214	Poorest of the poor	0.0217	0.0138	0.0279	0.0158
Coverage	0.0227	0.0184	0.0225	0.0208	Poor and poorest	**0.0266**	0.0147	**0.0295**	0.0259
Reaching sustainable business	0.0178	0.0136	0.0167	0.0161	Poor	0.0217	0.0150	0.0200	0.0245
Reaching prospective business	0.0229	0.0156	0.0197	**0.0280**	Near poor and poorest	0.0209	**0.0201**	0.0198	0.0161
Increase average loan size	0.0181	0.0107	0.0197	0.0182	Near poor and poor	0.0199	0.0107	0.0153	**0.0280**
Increase total loan	0.0174	0.0103	0.0185	0.0160	Near poor	0.0138	0.0081	0.0127	0.0155
Commercial services					**Social services**				
Mentoring for discipline	**0.0324**	**0.0233**	**0.0349**	**0.0285**	Credit for new business	0.0179	0.0127	0.0173	0.0178
Saving/deposit	0.0209	0.0147	0.0198	0.0209	Business coaching	0.0296	0.0177	0.0240	**0.0374**
Progressive lending	0.0165	0.0122	0.0149	0.0150	Business empowerment programme	**0.0316**	**0.0183**	0.0283	0.0372

Table 4 *(continue)*

COMMERCIAL					SOCIAL				
Commercial services	**All experts**	**Non-practitioner experts**	**Islamic practitioner experts**	**Conventional practitioner experts**	**Social services**	**All experts**	**Non-practitioner experts**	**Islamic practitioner experts**	**Conventional practitioner experts**
Mentoring for discipline	**0.0324**	**0.0233**	**0.0349**	**0.0285**	Credit for new business	0.0179	0.0127	0.0173	0.0178
Saving/deposit	0.0209	0.0147	0.0198	0.0209	Business coaching	0.0296	0.0177	0.0240	**0.0374**
Progressive lending	0.0165	0.0122	0.0149	0.0150	Business empowerment programme	**0.0316**	**0.0183**	0.0283	0.0372
Micro insurance	0.0184	0.0127	0.0168	0.0247	Basic provisions	0.0212	0.0174	**0.0290**	0.0166
Competence coach	0.0167	0.0114	0.0166	0.0168	Subsidised credit	0.0122	0.0075	0.0128	0.0117
Consumptive lending	0.0150	0.0094	0.0153	0.0138	Credit of capital goods	0.0154	0.0100	0.0181	0.0119
Commercial impact					**Social impact**				
Income increase	0.0164	0.0105	0.0131	0.0175	Togetherness	**0.0324**	**0.0183**	**0.0346**	**0.0326**
Business scale	0.0172	0.0108	0.0149	0.0175	Sustainable income	0.0192	0.0154	0.0169	0.0205
Deposit increase	**0.0258**	0.0179	**0.0251**	**0.0271**	Self-improvement	0.0231	0.0159	0.0233	0.0201
Reserve fund increase	0.0206	0.0120	0.0223	0.0239	Quality of life	0.0192	0.0141	0.0205	0.0201
High rate collectability	0.0206	**0.0201**	0.0250	0.0141	Self-employed business	0.0172	0.0120	0.0158	0.0150
Loyalty	0.0183	0.0125	0.0175	0.0169	Having dignity and confidence	0.0202	0.0152	0.0207	0.0205

while commercially orientated microfinance institutions emphasised the financial impact of their operations in achieving financial self-sufficiency.

CONCLUSIONS

The results of this study show that the activities of microfinance institutions are consistent with their genuine mission to empower and serve the poor community. Their commitment is reflected in their objectives and impacts. Group lending is believed to be an instrument that mitigates risk, especially through group enforcement and regular meetings. Strong evidence of the social orientation of Islamic microfinance institutions is also observed, in that Islamic microfinance institutions place greater emphasis on the depth of outreach while conventional microfinance institutions place more emphasis on financial impact. This study employed a decision-making approach different from the empirical approach employed by previous studies. This decision-making approach is believed to be relevant for this research because the orientation of the microfinance institutions is strongly influenced by their strategic preferences.

It is obvious that the interests of microfinance institutions in serving the poor and micro-small enterprises do not only reflect incentives in the form of risk mitigation inherent in group-lending mechanisms; they also reflect non-financial aspects focused on microfinance institutions' mission to end poverty. Information about the impacts and forms of social services provided by microfinance institutions will help governments and regulators to understand the extent to which such institutions can help to empower the poor and micro-small businesses, and what governments can do to support them. For owners and managers of funds and microfinance practitioners, information on the impacts and forms of social services will show to what extent the funds are managed and what innovations should be implemented to maximise their contribution. This study does not use quantitative data for the performance of microfinance institutions and is based on cooperative types of institution. It is therefore recommended that further research should integrate performance data for microfinance institutions and should also be tested on other types of microfinance institution besides cooperatives.

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Optimal Capital Structure: A Dynamic Approach in the Indonesian Capital Market

Ika Novaria[1] and Viverita Viverita[2]*

[1]*Financial Services Risk Management, Ernst & Young Indonesia, Indonesia Stock Exchange Building Tower 1, 12190, Jakarta, Indonesia*
[2]*Department of Management, Faculty of Economics and Business Universitas Indonesia, Depok, 16424, West Java, Indonesia*

ABSTRACT

This study analyzed the effect of profitability on leverage through the dynamic inaction model. This model implies that the effect of profitability on leverage may vary, depending on firms' capital structure optimality, which is achieved through refinancing activity. By using panel data regression and the generalized method of moments (GMM), the study investigated the dynamic effect of profitability on the leverage of 175 publicly listed firms on the Indonesia Stock Exchange during the period 2006–2015. It was found that profitability had no significant effect on leverage, both in firms with optimal and non-optimal capital structures. However, when capital structure was optimal, firm and industry characteristics had better abilities to explain leverage. Profitability also had no significant effect on predicting refinancing activity; however, firm size had better predictive power. In adjusting their capital structures to an optimal target, larger sized firms and those with higher profitability tended to adjust their leverage faster, while those with higher growth opportunities and bigger leverage gaps tended to do this more slowly. The study revealed that in Indonesia, firms with optimal capital structures might have different leverage-determinant factors from those with non-optimal capital structures.

Keywords: Capital structure, dynamic inaction model, leverage, profitability, refinancing, speed of adjustment

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E-mail addresses:
novaria.ika@gmail.com (Ika Novaria)
viverita.d@ui.ac.id (Viverita Viverita)
* Corresponding author

INTRODUCTION

The trade-off theory explains that firms set their target debt ratio by balancing the tax benefits and the cost of debt reflected by future financial distress or current financial inflexibilities. As Graham and Leary (2011) pointed out, trade-off theory

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broadly confirmed financing patterns, such as the fact that firms with more tangible assets and low volatility were likely to have higher leverage. However, the theory is not exempt from criticism, especially for its failure to justify the empirical evidence that leverage and profitability are negatively correlated. In spite of their low probability of bankruptcy and the need to preserve cash flow from taxes, profitable firms tend to have low leverage. Myers (1993), as well as Fama and French (2002), considered this inverse correlation to be the major failure of trade-off theory. Therefore, Danis et al. (2014) proposed a new perspective to analyze the profitability-leverage relationship based on a dynamic trade-off approach, which was the dynamic inaction model, which assumed that transaction costs hindered firms from continuous capital-structure optimization. By default, firms would remain inactive and only took rebalancing action when the benefits outweighed the costs.

Based on the previous work by Myers (1984), the dynamic inaction model distinguishes points at which firms achieve optimal capital structure from points at which they do not. The optimal points are achieved by firms through refinancing, through which they simultaneously issue debt and reduce equity in large quantities. Danis et al. (2014) found that when firms rebalanced their capital structures, they chose higher levels of leverage. Interestingly, they also found that when firms did not adjust their capital structures to a great extent, the correlation between profitability and leverage was negative. In addition to their cross-sectional study, they also examined the dynamic inaction model with respect to the time-series dimension. They concluded that changes in profits had the ability to forecast refinancing activities. This finding is consistent with the prediction of the dynamic inaction model that prior to capital structure adjustment a firm experiences a sequence of positive profitability shocks.

Following Danis et al. (2014), the dynamic inaction model is applied in this study to test the effect of profitability on leverage in Indonesia. While this leverage-profitability puzzle has been broadly discussed in various studies in Indonesia, this work offers a relatively new perspective through the dynamic approach. In examining the effect of profitability on leverage, firms are distinguished based on their capital-structure optimality (which is reflected by refinancing decisions), as opposed to simply testing the prevalent capital-structure theories, given the general assumption that firms are always at their target leverage. Therefore, real capital-structure patterns in Indonesia are captured appropriately and the leverage-profitability issue is analyzed more accurately through the dynamic perspective.

Contrary to Danis et al. (2014), this study revealed that profitability had no significant effect on leverage, both for firms with optimal and non-optimal capital structures. However, using a split-sample regression, it was concluded that when capital structure is optimal, firm and industry characteristics had better abilities to explain leverage. Specifically, in firms with an optimal capital structure, it was found that the main characteristics, such as risk, firm size, asset tangibility, firm growth,

industry concentration, and average industry leverage, had significant effects on leverage. On the other hand, in firms with a non-optimal capital structure, asset tangibility and industry concentration were the only two factors that significantly affected their leverage. This result implies that firms with optimal and non-optimal capital structures may have different leverage determinants.

With respect to the time-series dimension, it was also found that changes in profits were not able to not predict refinancing activities. In particular, positive profitability changes prior to a rebalancing event had no significant effect on the probability of refinancing. Considering the findings from the cross-sectional study, this result is intuitive. Since profitability had no significant effect on leverage, a firm's decision to adjust its debt upwards (or conduct refinancing) was not affected by its changes in profitability either. Therefore, firms' refinancing activities could not be forecast by prior increases in profitability. In contrast, it was found that firm size had better predictive power instead. Although size was not the main variable in the analysis, this finding is consistent with the results documented by Danis et al. (2014).

The target-adjustment model was also examined to analyze the effect of firm characteristics on the speed of capital-structure adjustment to the target debt ratio (Drobetz & Wanzenried, 2006). Since debt-issuance costs deter firms from full capital-structure adjustment, they tend to adjust their leverage only *partially* to the long-run target at a certain speed. It was found that the speed of adjustment was affected by a firm's characteristics, thus it varied across firms and over time. It was concluded that more profitable and larger firms adjust their leverage faster and more readily, while those with higher growth and bigger leverage gaps adjust more slowly.

Several contributions to the study of capital structure are presented by this paper in the following ways. First, the profitability-leverage relationship is examined through a dynamic model, which is a relatively new approach in Indonesia. Firms are differentiated by their capital-structure optimality, which is reflected by refinancing decisions. Therefore, the capital-structure pattern of Indonesian firms is captured better in this study. Second, it is revealed that firms with different capital-structure conditions might have different leverage determinants. In particular, it was found that leverage determinants for firms with optimal capital structures were mostly consistent with theoretical predictions, while those for firms with non-optimal capital structures were not. Hence, this implies that further analysis is required to examine the leverage determinants for firms with *non-optimal* capital structures. Third, the time-series analysis that was used in this study to observe the dynamic inaction model is new in terms of examining factors that can predict refinancing activity. In practice, the insights from this study might be useful in helping firms to develop policies and regulations that strengthen their ability to achieve optimal capital structures.

The structure of the rest of the paper is as follows: section 2 presents a brief literature review of the dynamic inaction

model for capital structure and hypothesis development; section 3 provides the research methodology; section 4 presents the results and analysis; and finally section 5 concludes the paper.

Literature Review

The general concept of the dynamic trade-off model is that a firm's actual debt ratio cannot be equal to its optimal target at any time. Market frictions, such as transaction costs and financial-market imperfections, can deter immediate capital-structure adjustment to the desired level (Ghazouani, 2013). Fischer et al. (1989) showed that even low transaction costs would cause a delay in capital-structure adjustment and wide swings in the debt ratio. Leary and Roberts (2005), as well as Byoun (2008), confirmed this conclusion.

Profitability and Optimal Capital Structure: A Dynamic Inaction Model. A dynamic inaction model was developed based on the assumption from the dynamic trade-off theories, such as those of Fischer et al. (1989) and Strebulaev (2007), that capital structure is infrequently adjusted to its optimal level. Due to transaction costs, firms occasionally adjust their leverage, but only when the benefits of adjustment outweigh the costs of deviating leverage. Danis et al. (2014) argued that when adjusting their capital structures through refinancing, firms with higher profits would choose higher optimal debt ratios. Previous findings by Korteweg and Strebulaev (2012) supported this conclusion. They found that, although not significant, the correlation between profitability and leverage was positive when refinancing took place. In contrast, at times when the firms were inactive and did not adjust their leverage, the correlation between profitability and leverage was negative. Without rebalancing action, changes in profitability would lead to an increase in the market value of equity and leave a relatively smaller portion of leverage. Therefore, a negative relationship would be observed between profits and leverage. Based on these arguments, the empirical predictions of the effect of profitability on leverage are as follows:

Hypothesis 1: Profitability has a positive effect on leverage in firms with optimal capital structures that are achieved through refinancing.

Hypothesis 2: Profitability has a negative effect on leverage in firms with non-optimal capital structures without any refinancing activity.

As mentioned earlier, according to the dynamic inaction model, firms will increase their leverage ratio after undergoing a series of positive profitability shocks. With these changes in profitability, firms need to raise their tax shields and lower expected bankruptcy costs. Therefore, after profitability shocks, it is optimal for firms to adjust their leverage upwards. This rationale underlies the next prediction, which is that changes in profitability have the ability to predict refinancing activities.

Hypothesis 3: Changes in profitability have a positive effect on the probability of refinancing.

Target-Adjustment Model. In a dynamic trade-off model, as a consequence of adjustment costs firms' observed and target leverage may differ. It might be cheaper for them to not fully adjust their leverage to the optimal targets, even if they recognize that their existing leverage ratios are not optimal (Drobetz & Wanzenried, 2006). Firms tend to *partially* adjust their capital structures to the long-run leverage target at a specific speed of adjustment that is affected by their characteristics. The speed of adjustment, therefore, varies across firms and over time. Numerous previous studies have focused on examining the determining factors of the speed of adjustment (Banerjee et al., 2004; Drobetz & Wanzenried, 2006; Lemma & Negash, 2014; Mukherjee & Mahakud, 2010). Specifically, the effect of profitability on the speed of capital-structure adjustment is documented in various studies. However, several similar studies in Indonesia (Astuti, 2015; Prabandari, 2015) have reported a significant and positive effect of profitability on the speed of adjustment. In addition, higher profit might also increase the value of debt tax shields, especially if firms are underleveraged. Based on this notion, the prediction of the effect of profitability on the speed of adjustment is as follows:

> *Hypothesis 4: Profitability has a positive effect on the speed of capital structure adjustment.*

MATERIALS AND METHODS

Data and Sample Selection

All firms that had been publicly listed on the Indonesia Stock Exchange (IDX) since 2001 were included in the sample. Although the period examined in this study was between 2006 and 2015, several variables were taken five years prior to the study period. Therefore, dataset for the sample from 2001-2015 was required. The financial industry was excluded from the sample due to its uniqueness and specific asset characteristics. The sample selection represented a total of 175 firms, with total of 1,750 observations. All the data required were taken from The Indonesia Capital Market Institute (TICMI) database. In dealing with outliers, all variables were winsorized at the 5% level.

Empirical Models

Three different methods were applied to test the predictions. For the dynamic inaction model comprising the first three hypotheses, panel regression and binary logistic regression were performed. Specifically, to test *Hypotheses 1* and *2*, panel regression was used, due to its suitability for a combination of time-series and cross-sectional data, while to test *Hypothesis 3*, in which the dependent variable was categorical data representing firms' refinancing decisions, binary logistic regression was applied. In the target-adjustment model that was tested through *Hypothesis 4*, generalized method of moments (GMM) was used to cope with the endogeneity issue.

Dynamic Inaction Model. To examine the effect of profitability on leverage, as predicted in *Hypotheses 1* and *2*, the following regression model was estimated:

$$LV_{it+1} = \alpha_0 + \alpha_1 d_{it+1} + \beta_1 PROF_{it} + \beta_2 d_{it+1} PROF_{it} + \beta_3 Z_{it} + e_{it+1} \quad (1)$$

The dependent variable is quasi-market leverage (LV_{it+1}), which was obtained from total debt divided by the sum of total debt and the market value of total equity at the end of each year. The independent variable is profitability ($PROF_{it}$), obtained from operating profit divided by total assets. In the model, a dummy variable, d_{it+1}, was included, equal to one if firms were at their refinancing points, and zero otherwise, as well as an interaction term of the dummy variable and profitability. $\beta_1 + \beta_2$ measures the cross-sectional effects of profitability on leverage at refinancing points, whereas β_1 measures the effects at other points. The definition of refinancing points proposed by Danis et al. (2014) was applied in this study; that is, the period in which firms simultaneously adjust their leverage upwards and reduce their equity on a large scale. At these points, firms have to satisfy two criteria: 1) net long-term debt issuance divided by total assets, T_d, must exceed 5%; and 2) cash dividend plus net share repurchases divided by total assets, T_e, also must exceed 5%. In the regression model, a controlling vector Z_{it}, was also introduced. This included firm size, market-to-book ratio, tangible assets, risk measured by the standard deviation of profits in the past five years, industry concentration measured by the Herfindahl-Hirschman index (HHI), average industry leverage, and a dummy variable indicating whether the firm has a long-term credit rating or not. These covariates entered into the equation, not to explain the causal relation with leverage, but instead to be kept the effect is fixed while the cross-sectional effect of profitability on leverage was examined. To control the industry characteristics in the sample, industry-fixed effects (based on 32 sub-sectors) were used in the estimation model. To test the time-series prediction through Hypothesis 3, binary logistic regression was applied using the following model:

$$n\left(\frac{p(x)}{1-p(x)}\right) = \alpha + \beta_1 RISK_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 TANG_{it} + \beta_5 PROF_{it} + \beta_6 \Delta PROF_{it} \quad (2)$$

As mentioned by Hosmer et al. (1997), because binary logistic regression examines the effect of independent variables on the probability of an event, its application is suitable for predictive analysis. Therefore, the ability of changes in profitability to forecast refinancing activities was tested through the model. The dependent variable in the model was the refinancing dummy variable, equal to one if the firms were at their refinancing points, and zero otherwise. A variable representing changes in profits ($\Delta PROF_{it}$) was introduced in the model as the main variable.

Target-Adjustment Model. To test the prediction in *Hypothesis 4*, which considers the effect of profitability on the speed of capital-structure adjustment, two-step estimator GMM, as previously proposed by

Arellano and Bover (1995) and Blundell and Bond (1998), was used. GMM estimation is suitable for dealing with the endogeneity issue caused by the correlation between independent variables, which is generated from the lagged values of the dependent variable, and the past or current values of the idiosyncratic component of disturbances (Roodman, 2009).

The dynamic capital-structure setup used by Drobetz and Wanzenried (2006) was adapted for this study. Assuming the optimal leverage ratio for firm *i* in period *t* was LV_{it}^{*} , it was a linear function of *L* explanatory variables, X_{jit} (where *j* = 1, 2,... *L*):

$$LV_{it}^{*} = \sum_{j=1}^{L} \alpha_j X_{jit} \quad (3)$$

If the capital-structure adjustment involves transaction costs, firms might not fully adjust their actual leverage ratio from the previous period to the current optimal target. This partial adjustment is then written as follows:

$$(LV_{it} - LV_{it-1}) = \delta_{it}(LV_{it}^{*} - LV_{it-1}) \quad (4)$$

where δ_{it} represents the speed of adjustment to the target leverage ratio, starting from the previous year's ratio, which is labeled as LV_{it-1}. The presence of adjustment costs is captured by the constraint that $|\delta_{it}| < 1$. The speed of adjustment, δ_{it}, is presumed to vary over time, and that it is a linear function of a constant term and certain predetermined firm-specific characteristics, Z_{it}:

$$\delta_{it} = \beta_0 + \beta_1 Z_{it} \quad (5)$$

Recomposing the partial adjustment model in equation (4) by defining LV_{it}^{*} as a linear function of capital-structure determinants, as described in equation (3), and replacing the term of adjustment speed, δ_{it}, with its determinant function in equation (5), equation (6) was obtained as the empirical model for the target-adjustment hypothesis:

$$LV_{it} = (1 - \beta_0)LV_{it-1} - \beta_1 Z_{it} LV_{it-1} + \beta_0 \sum_{j=1}^{L} \alpha_j X_{jit} + \beta_1 \sum_{j=1}^{L} \alpha_j Z_{it} X_{jit} + d_t + \eta_i + u_{it} \quad (6)$$

where d_t is the time-specific effects that vary over time but remain constant for all firms in a given period, and η_i is the firm-specific effects that differ across firms but are fixed over time. In estimating equation (6), the main interest is in β_1, which is the coefficient of the interaction term of the determinants for adjustment speed, Z_{it}, and the lagged leverage, LV_{it-1}. Referring to Drobetz and Wanzenried (2006) and Lemma and Negash (2014), the adjustment speed determinants, Z_{it}, examined in this study were profitability, firm size, growth opportunity reflected by market-to-book ratio, and leverage gap, defined as the absolute value of the difference between a firm's actual leverage ratio and its optimal target. Mathematically, this leverage gap is specified as follows:

$$DIST = |LV_{it}^{*} - LV_{it}| \quad (7)$$

The target leverage, LV_{it}^{*}, is defined as the fitted values from the regression model estimation using equation (3). The leverage determinants included in the estimation are profitability, size, asset tangibility and market-to-book ratio (Drobetz & Wanzenried, 2006; Oinu & Ukaegbu, 2015). To control the industry-specific characteristics of the samples, industry fixed effects were again included in estimating LV_{it}^{*}.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 presents the descriptive statistics for all the variables in the analysis. Leverage (LV) for all the firms in the sample has an average value of 0.4875 and a relatively smaller variation of 0.2629. The proxies for capital-structure adjustment, represented by T_d and T_e, are the variables with the highest dispersion. This variation explains that firms in the sample adjust their leverage in a highly fluctuating fashion. The other variables, which are profitability (PROF), standard deviation of profitability in the past five years (RISK), firm size (SIZE), asset tangibility (TANG), market-to-book ratio (MTB), industry concentration (HHI), and average industry leverage (ILEV), on the other hand, show relatively identical characteristics and moderate variations. The profitability changes ($\Delta PROF$) in the past five years reveal a specific pattern. These changes in profits become larger as one goes further back into the observation period. The mean value of distance (DIST) for all firms is -0.0004, which implies that, in general, all the firms are overleveraged.

Table 1
Summary statistics

Variable	Observations	Mean	Median	Std. Dev.	Min.	Max.
LV	1,750	0.4875	0.4774	0.2629	0.0701	0.9143
PROF	1,750	0.0786	0.0661	0.0863	-0.0697	0.2838
T_d	1,750	-0.0004	0.0004	0.8518	-0.1700	0.1815
T_e	1,750	-0.0078	0.0000	0.7589	-0.2780	0.1019
RISK	1,750	0.0413	0.0307	0.0313	0.0088	0.1270
SIZE	1,750	28.0528	28.0668	1.5950	25.2400	30.9122
TANG	1,750	0.3300	0.2950	0.2158	0.0195	0.7450
MTB	1,750	1.3828	1.0653	0.8267	0.5567	3.7109
HHI	1,750	0.2148	0.1746	0.1791	0.0182	0.6095
ILEV	1,750	0.4749	0.4593	0.1322	0.2504	0.7367
Δ *PROF* $_{t-1}$	1,750	-0.0022	-0.0035	0.0497	-0.1106	0.1036
Δ *PROF* $_{t-2}$	1,750	-0.0006	-0.0003	0.0611	-0.1271	0.1265
Δ *PROF* $_{t-3}$	1,750	0.0026	0.0028	0.0684	-0.1407	0.1464
Δ *PROF* $_{t-4}$	1,750	0.0059	0.0056	0.0766	-0.1520	0.1632
Δ *PROF* $_{t-5}$	1,750	0.0076	0.0099	0.0813	-0.1518	0.1715
DIST	1,750	-0.0004	0.0122	0.2596	-0.4797	0.4823

Empirical Results

Dynamic Inaction Model. Table 2 presents the results from the estimation of equation (1). In addition to the full-sample regression, the model was also run for split samples to distinguish between the firms that had achieved optimal capital structures through refinancing and those that had not.

The results for the full-sample regression in column 1 show that neither profitability (PROF) nor the interaction term of the refinancing dummy variable and profitability (PROF x REF_DUM) have a significant coefficient. This suggests that whether or not the firms have optimal capital structures, profitability has no significant effect on leverage. The insignificant coefficient of the interaction term PROF x REF_DUM also suggests that there is no significant difference in the effect of profitability in either group. To check the robustness of the results, the regression model was rerun with alternative definitions of leverage, using total long-term debt instead of total debt, and book value rather than market value. Neither of these alternative leverage definitions

Table 2
Estimation results for Hypotheses 1 and 2 using a Fixed Effect Model

Variable	Full Sample	Sub-Sample: Optimal	Sub-Sample: Non-Optimal
	(1)	(2)	(3)
Intercept	0.8815** (0.3522)	8.9709** (3.6803)	0.8613** (0.3533)
PROF	0.0518 (0.0939)	-0.3085 (0.5602)	0.0646 (0.0960)
REF_DUM	0.0138 (0.0169)	N/A	N/A
PROF x REF_DUM	0.1605 (0.1852)	N/A	N/A
RISK	0.1653 (0.2826)	3.9867** (1.6226)	0.1179 (0.2844)
SIZE	-0.0173 (0.0120)	-0.3077** (0.1251)	-0.0165 (0.0120)
TANG	0.1416** (0.0598)	-1.1359*** (0.3340)	0.1438** (0.0604)
MTB	-0.0049 (0.0095)	0.4281*** (0.0874)	-0.0052 (0.0095)
HHI	-0.1411** (0.0657)	-0.6056*** (0.2079)	-0.1393** (0.0662)
ILEV	0.1489** (0.7263)	0.9536** (0.3779)	0.1449* (0.0743)
Within R^2	0.0312	0.7964	0.0293
Wald test	2.65***	10.15***	2.84***
Number of observations	1,750	32	1,718

Notes: *, ** and *** indicate that parameter estimations are significantly different from zero at the 10%, 5% and 1% confidence levels respectively. Robust standard errors are in parentheses.

changed the conclusion. Although this result did not tend to support the predictions of this study, it was consistent with the previous findings of Atansil and Ernawati (2012), as well as those of Syahara and Soekarno (2015). Both studies concluded that there was a positive and insignificant effect of profitability on leverage. Atansil and Ernawati (2012) argued that the positive effect indicated a (static) trade-off pattern, in which more profitable firms chose higher levels of leverage to shield their profits. However, they suggested that the insignificant effect might stem from firms' decisions to use these high profits to repay their debts.

According to the results in column 1, mixed conclusions were reached for other covariates. First, similarly to profitability, it was also found that firm size, growth opportunity, and risk had no significant effect on leverage. Second, in contrast to those variables, significant effects were documented for asset tangibility, industry concentration, and average industry leverage. The other covariate, the dummy variable for credit rating, was omitted from the estimation of the model due to a multicollinearity problem.

These covariates were then analyzed in split-sample regressions, distinguishing firms that had achieved optimal capital structures from those that had not, as shown in columns 2 and 3. Interestingly, it was found that when firms had optimal capital structures, almost all of the independent variables (except profitability) had a significant effect on leverage. Nearly 80% of the variability in leverage could be clearly explained by the variability in the independent variables, as demonstrated by the R-squared values. On the other hand, if firms had not reached their optimal capital structures, only three out of the seven independent variables (asset tangibility, industry concentration, and average industry leverage) had a significant effect on leverage, with much lower explanatory power. The results in column 3 closely resemble those in column 1, since firms with non-optimal capital structures dominated the total sample. This finding implies that firms with an optimal capital structure might have different leverage-determinant factors from those with a non-optimal structure. This is consistent with the conclusions drawn by Heshmati (2001), Banerjee et al. (2004) and Drobetz and Wanzenried (2006), that analysis of optimal capital structure should be distinguished from non-optimal conditions.

Table 3 presents the results from the testing of *Hypothesis 3* through the model in equation (2), which examines the relationship between profitability changes and capital structure rebalancing events in the time-series dimension. In particular, the model estimates the effect of evolutions in profitability prior to firms' refinancing decisions. To observe the marginal effects, the regression model was run five times for profit changes in each period, from $t-1$ to $t-5$. The standard firm characteristics included in this model were level of profitability (Δ PROF), risk (RISK), firm size (SIZE), market-to-book ratio (MTB), and asset tangibility (TANG).

Table 3
Estimation results for Hypothesis 3 using Binary Logistic Regression

Variable	t-1	t-2	t-3	t-4	t-5
Δ PROF	0.0457 (0.0694)	0.0414 (0.0563)	0.0492 (0.0506)	0.0474 (0.0452)	0.0667 (0.0431)
PROF	0.0001 (0.0439)	-0.0004 (0.0438)	0.0006 (0.0438)	0.0009 (0.0437)	0.0030 (0.0437)
RISK	-0.0328 (0.1154)	-0.0322 (0.1153)	-0.0341 (0.1158)	-0.0358 (0.1161)	-0.0418 (0.1167)
SIZE	0.0072*** (0.0025)	0.0072*** (0.0025)	0.0074*** (0.0025)	0.0074*** (0.0025)	0.0075*** (0.0025)
MTB	-0.0014 (0.0046)	-0.0015 (0.0046)	-0.0015 (0.0046)	-0.0015 (0.0046)	-0.0017 (0.0046)
TANG	0.0157 (0.0179)	0.0158 (0.0179)	0.0155 (0.0179)	0.0157 (0.0179)	0.0162 (0.0179)
McFadden's R^2	0.0405	0.0409	0.0422	0.0427	0.0472
LR test (Chi-sq.)	12.95**	13.06**	13.48**	13.65**	15.08**
Number of observations	1,750	1,750	1,750	1,750	1,750

Notes: The coefficients reported are the marginal effects. *, ** and *** indicate that the parameter estimations are significantly different from zero at the 10%, 5% and 1% confidence levels respectively. The delta-method standard errors are in parentheses.

In respect to the prediction in *Hypothesis 3*, it is concluded that changes in profitability have no significant effect on the probability of refinancing. Therefore, it can be deduced that refinancing activities cannot be predicted by changes in profit. Regarding the conclusion of testing Hypotheses 1 and 2, this result is plausible. Since profitability has no significant effect on leverage, a firm's decision to adjust its leverage upwards (or to refinance) is not affected by changed profitability. Refinancing, therefore, cannot be forecast by prior profitability shocks. As can be seen from Table 3, the only independent variable that has a significant marginal effect is firm size. Although size is not the main variable examined in this analysis, it is consistent with the results of Danis et al. (2014). Larger firms tend to have better access to external financing and incur relatively lower issuance costs. These privileges encourage them to rebalance more often. As a result, firm size has a better predictive power for forecasting refinancing activities.

Target-Adjustment Model. The prediction in *Hypothesis 4* regarding the effect of profitability on the speed of capital-structure adjustment was tested through equation (6) using the two-step estimator GMM proposed by Arellano and Bover (1995) and Blundell and Bond (1998). Along with profitability (PROF), size (SIZE), market-to-book ratio (MTB), and leverage gap were put into the model as the determinants of adjustment speed. The analysis focused on the estimate of β_1, the coefficient of the interaction term of these determinants, and the lagged leverage, LV_{it-1}. Table 4

presents the results from the estimation of the determining factors of adjustment speed.

Because the model in equation (6) specifies a negative sign on β_1, the interpretation of the estimated coefficients of the interaction terms must be adjusted accordingly. Consistent with the prediction, it was found that profitability had a significant and positive effect on the speed of adjustment. More profitable firms tended to have more flexibility in financing decisions and to incur relatively lower transaction costs. Higher profit might also increase the value of debt tax shields, especially for underleveraged firms (Flannery & Hankins, 2007; Lemma & Negash, 2014). Therefore, firms with higher profitability were likely to adjust their leverage faster. Firm size also had a significant and positive effect on the speed of adjustment. As mentioned previously, larger firms generally had better access to external financing and incurred relatively lower issuance costs. In addition, it was less likely that these firms would have issues with asymmetric information. Hence, larger firms sizes tended to adjust their leverage more readily (Banerjee et al., 2004; Drobetz & Wanzenried, 2006).

It is concluded that growth opportunity, as reflected by the market-to-book ratio, had a significant and negative effect on the speed of adjustment. Growing firms tended to incur higher agency costs and higher expected bankruptcy costs. Therefore, this implied lower financial leverage (Ozkan, 2001). Dang et al. (2011) also suggest that low-growth firms might face higher costs of deviating from target leverage and

Table 4
Estimation results for Hypothesis 4 using the Two-Step Estimator GMM

Variable	Coefficient (β_1)
Intercept	0.1817*** (0.0021)
LV_{t-1}	1.0028*** (0.0454)
LV_{t-1} x PROF	-0.0471*** (0.0195)
LV_{t-1} x SIZE	-0.0159*** (0.0017)
LV_{t-1} x MTB	0.0184*** (0.0018)
LV_{t-1} x DIST	0.1965*** (0.0212)
Wald test (Chi-sq.)	52,318.78***
AR(2) test	0.05
Sargan test	173.2615
Number of observations	1,750

Notes: *, ** and *** indicate that the parameter estimations are significantly different from zero at the 10%, 5% and 1% confidence level respectively. Standard errors are in parentheses.

incur lower transaction costs, thus possibly adjusting their leverage faster. Finally, it was also found that firms with bigger leverage gaps tended to adjust their leverage more slowly. As discussed by Lemma and Negash (2014), if the costs of adjustment are extremely high, firms may avoid using capital markets and instead manipulate their dividend policies to rebalance their capital structure. In this case, the cost of adjustment that increases along with an increase in the leverage gap implies a slower adjustment speed.

CONCLUSIONS

The study aimed to examine the effect of profitability on leverage from a new perspective, namely a dynamic inaction model that distinguished firms based on their capital structure optimality. It was concluded that profitability has no significant effect on leverage, whether or not firms had optimal capital structures. However, with such structures, firms and industry characteristics were more able to explain leverage. With respect to the time-series dimension, it was also found that changes in profitability could not predict refinancing activities. On the contrary, firm size had better predictive power. When testing the target adjustment model, it was identified that firms with higher profitability and larger size tended to adjust their leverage faster, while those with higher growth and bigger leverage gaps were likely to adjust more slowly. The study has emphasized that firms with optimal and non-optimal capital structures may have different leverage determinants. As the conclusion on optimal capital structures is consistent with the theoretical predictions, further analysis of leverage determinants for non-optimal capital structures is highly encouraged in future studies.

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Islamic Bank Profit-Loss Sharing Financing and Earnings Volatility

Titi Dewi Warninda[1], Rofikoh Rokhim[2] and Irwan Adi Ekaputra[2]*

[1]Faculty of Economics and Business, Universitas Islam Negeri Syarif Hidayatullah, Ciputat, 15412, Banten, Indonesia
[2]Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, 16424, West Java, Indonesia

ABSTRACT

Profit-loss sharing (PLS) financing comprises Musharakah and Mudarabah ought to be the main form of Islamic banks' financing. However, based on Southeast Asia, South Asia, and the Middle East Islamic banks' data, this research shows that the proportion of PLS financing is still deficient compared to debt financing. Moreover, it shows that only Musharakah financing displays a significant linear and nonlinear (inverse U-shape) association with Islamic bank earnings volatility. The empirical estimates suggest that earnings volatility is maximized when the proportions of Musharakah financing is about 31%. Increasing this type of financing beyond 31% may lower earnings volatility.

Keywords: Earnings volatility, Islamic banks, Mudarabah financing, Musharakah financing

INTRODUCTION

Islamic banks have proliferated globally. In 2013, their total assets reached USD1.7 trillion and growing at an average rate of 17.6% per annum during 2009-2013 (Ernst & Young, 2013). However, according to Khan & Bhatti (2008), Islamic finance and banking activities flourish mostly in three regions: Southeast Asia, South Asia, and the Middle East. The centre of Islamic banking and finance is in the Middle East, but investments from Middle Eastern countries have also driven Islamic banks and finance to expand in Southeastern and Southern parts of Asia (Khan & Bhatti, 2008; Shahzad et al., 2014). The profit-loss sharing (PLS) system is the discriminating characteristic between Islamic banks and conventional ones (Hamza & Saadaoui, 2013). As part of the bank's assets, PLS consists of Musharakah and Mudarabah contracts (Dar & Presley, 2000). These

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E-mail addresses:
titi.dewi@uinjkt.ac.id (Titi Dewi Warninda)
rofikoh.rokhim@ui.ac.id (Rofikoh Rokhim)
irwan.adi@ui.ac.id (Irwan Adi Ekaputra)
* Corresponding author

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contracts designate Islamic banks as the providers of funds, which are distributed to borrowers or entrepreneurs. In return, Islamic banks may obtain profit in the form of profit-sharing (Abedifar et al., 2013). The yield earned from providing PLS financing depends on the profit made by the borrowers. Hence, Islamic banks do not earn a fixed return from this type of financing.

Although based on Islamic principles, PLS is the utmost suitable financing (Hassan et al., 2003), it seems that Islamic banks globally tend to favor debt financing (Siddiqi, 2006). One possible cause for the lack of PLS financing is the perception that it may make Islamic banks have a higher risk from the possible existence of information asymmetry, moral hazard, adverse selection, and costly monitoring (Beck et al., 2013; Chong & Liu, 2009). In contrast, a different cluster of literature states that PLS financing will diminish risk and escalate stability through improved credit due diligence and asset supervision (Ahmed, 2010; Zeineb & Mensi, 2014).

In Mudarabah financing, Islamic banks provide funds and also bear all the risk of losses. In Musharakah financing, the bank and the borrower jointly finance a project, with both parties offering capital and carrying the risk of losses proportionately. Furthermore, in Musharakah financing, Islamic banks also can control the customers' business (Chong & Liu, 2009; Minhas, 2014). Hence, it is supposed to be less risky than Mudarabah (Ariffin et al. , 2009; Louhichi & Boujelbene, 2016).

This study contributes to the literature on the association of PLS financing and Islamic bank earnings volatility, since Islamic banks do not earn a fixed return from providing such financing. Earnings volatility represents accounting measures of overall bank risk (Agusman et al., 2008), bank risk-taking (Soedarmono et al., 2013), and risk associated with the probability of bank default (Agoraki et al., 2011). Higher earnings volatility will lead to uncertainty in the bank equity level and tends to lower bank soundness (Couto, 2002).

Some earlier studies have analyzed the effect of bank income structure on bank earnings volatility. They showed that an increase in banks' non-interest income activities (which were relatively more volatile than interest income) would increase earnings volatility (Lepetit et al., 2008; Stiroh, 2004). Similarly, the study based on Islamic banks in GCC countries showed that PLS operating income exhibited a positive relation with Islamic bank earnings volatility (Grassa, 2012). Since Mudarabah and Musharakah financing have different characteristics (Ariffin et al., 2009; Chong & Liu, 2009; Louhichi & Boujelbene, 2016), this research explicitly investigates their impact on earnings volatility.

The result of this research shows that Musharakah displays significant linear and inverse U-shape (nonlinear) relations with the Islamic bank's earnings volatility, while Mudarabah does not show significant associations with earnings volatility. This finding is in contrast with the view that Mudarabah is riskier if compared to

Musharakah (Ariffin et al., 2009; Louhichi & Boujelbene, 2016). Additionally, our results suggest that Islamic bank earnings volatility will touch the highest level when Musharakah contracts have a proportion of around 31%. The empirical results of this paper may lead to the theoretical development of the association between Musharakah and Mudarabah financing with the risk of Islamic bank. To the best of our knowledge, such a formal theory has not been previously established. The rest of the paper is organized as follows: section 2 explains the data and methodology of the research, section 3 describes and discusses the results; section 4 presents the robustness check results; and section 5 provides some concluding remarks.

MATERIALS AND METHODS

This study utilized data of Islamic banks in Southeast Asia, South Asia, and the Middle East regions. The three regions were selected since the activities of Islamic banks were particularly concentrated in these areas (Khan & Bhatti, 2008; Shahzad et al., 2014). The data provided information about the type of financing in their financial statements, including PLS financing. Therefore, this study resorted to unbalanced panel data of 63 Islamic banks from 2006 to 2015. The data were collected from each of the Islamic banks' websites, capital market websites, the central bank website, and the World Bank website. Equation 1 is employed to examine the relations of Mudarabah and Musharakah financing with earnings volatility.

$$SDROA_{i,t} = \beta_0 + \beta_1 MUD_{i,t} + \beta_2 MUD^2_{i,t} + \beta_3 MUS_{i,t} + \beta_4 MUS^2_{i,t} + \Sigma\gamma_n CONTROL + e_{i,t} \quad (1)$$

Following Soedarmono et al. (2011), the standard deviation of Return on Assets (SDROA) was used to measure earnings volatility. SDROA also measures bank insolvency (Abedifar et al., 2013) and the bank's overall operational risk (Bashir, 1999). To establish the robustness of the results, this research employed 2-year to 6-year rolling windows of SDROA. MUD represents Mudarabah financing relative to total financing, while MUD^2 is simply the square of MUD, to capture its curvilinear association with SDROA. MUS represents Musharakah financing relative to total bank's financing, while MUS^2 is MUS squared to reflect the nonlinear relations of MUS and SDROA. This study used yearly gross values of Musharakah and Mudarabah since most of the Islamic banks in the sample only reported the gross amount of the financing.

CONTROL is the control variables comprising country-level and bank-level variates. The country-level variates are: (1) each country GDP growth (Soedarmono et al., 2013); (2) the average Exchange Rate of each country's currency against the USD (EXC) (Agusman et al., 2014); and (3) the percentage of total unemployment to the total labour force (UNM) of each country (Liu et al., 2013). Bank-level variates are: (1) SIZE is the log of the bank's total assets (Barry et al., 2011); (2) LLR represents Loan Loss Reserves to bank's total gross financing

(Soedarmono et al., 2011); and (3) ROA is Return on Total Assets (Duh et al., 2012).

Equation 1 is evaluated with panel data random-effect regressions by way of robust standard error. It is assumed that the variation across banks is random and uncorrelated with the predictor or independent variables included in the model. Therefore, Random-Effect panel data regression takes into account the heterogeneity of each Islamic bank.

RESULTS AND DISCUSSIONS

Base Results

Table 1 displays the descriptive statistics of the variables employed in our analysis based on the 2-year SDROA rolling window periods. The 2-year rolling window provided the largest number of observations. For all sample, the average financing proportions based on Musharakah and Mudarabah contracts were 9.8% and 3.2% respectively. Table 1 shows that the average of Musharakah is higher than that of Mudarabah for Islamic banks in South Asia (34.2% vs. 0.5%) and Southeast Asia (12.0% vs. 3.5%) regions. Meanwhile, Islamic banks in the Middle East showed the opposite averages (3.1% vs. 3.5%).

For the full sample, Musharakah proportion ranged from 0% to 72.4% and Mudarabah proportion ranged from 0% to 47.3%. For Middle East sample, Musharakah proportion varied from 0% to 21.6% while Mudarabah proportion varied from 0% to 47.3%. Meanwhile, for the South Asia sample, Musharakah and Mudarabah proportions varied from 0% to 72.0% and 0% to 11.6% respectively. Finally, for Southeast Asia sample, the proportions of Musharakah and Mudarabah financing ranged from 0% to 72.4% and 0% to 45.3%, correspondingly. The top average of Musharakah proportion was observed in the South Asia region (34.2 %), while the lowest was found in the Middle East (3.1%). The highest average proportion of Mudarabah financing was in the Middle East (3.5%), while the lowest was in South Asia (0.5%).

The descriptive statistics show that the overall average Musharakah and Mudarabah proportions are still relatively low. This indicates that Islamic banks are reluctant to provide PLS financing, which is possibly due to bankers' perception that it may lead to higher risk than fixed-return financing (Khan & Ahmed, 2001). Table 2 depicts the

Table 1
Descriptive statistics

	SDROA	*MUS*	*MUD*	*ROA*	*LLR*	*SIZE*	*GDP*	*EXC*	*UNM*
					A. Whole Sample				
Mean	0.009	0.098	0.032	0.010	0.034	9.317	0.042	1.070	4.681
Median	0.003	0.014	0.000	0.008	0.022	9.317	0.047	0.561	3.700
Max.	0.225	0.724	0.473	0.305	0.476	10.926	0.196	4.127	18.112
Min.	0.000	0.000	0.000	-0.169	0.000	0.047	-0.281	-0.571	0.164
Std. Dev.	0.022	0.151	0.075	0.029	0.044	0.860	0.040	1.449	3.849

Table 1 *(continue)*

	SDROA	*MUS*	*MUD*	*ROA*	*LLR*	*SIZE*	*GDP*	*EXC*	*UNM*
				B. Middle East					
Mean	0.012	0.031	0.035	0.015	0.035	9.484	0.040	0.333	4.748
Median	0.003	0.001	0.000	0.011	0.023	9.589	0.038	0.561	3.576
Max.	0.225	0.216	0.473	0.305	0.407	10.926	0.196	4.074	18.112
Min.	0.000	0.000	0.000	-0.090	0.000	6.014	-0.281	-0.571	0.164
Std. Dev.	0.027	0.054	0.083	0.037	0.044	0.799	0.052	0.886	5.140
				C. South Asia					
Mean	0.006	0.342	0.005	-0.001	0.0377	8.768	0.035	1.877	5.448
Median	0.004	0.318	0.000	0.003	0.0287	8.833	0.035	1.936	5.600
Max.	0.027	0.720	0.116	0.017	0.0995	9.714	0.060	2.012	6.240
Min.	0.000	0.000	0.000	-0.030	0.0008	7.665	0.016	1.187	1.214
Std. Dev.	0.007	0.168	0.019	0.012	0.0256	0.456	0.012	0.225	0.982
				D. Southeast Asia					
Mean	0.005	0.120	0.035	0.006	0.032	9.247	0.048	1.805	4.389
Median	0.002	0.045	0.000	0.007	0.021	9.347	0.053	0.547	3.350
Max.	0.155	0.724	0.453	0.028	0.476	10.620	0.094	4.127	9.106
Min.	0.000	0.000	0.000	-0.169	0.000	0.047	-0.025	0.097	1.658
Std. Dev.	0.017	0.159	0.071	0.017	0.048	0.952	0.024	1.715	1.836

Notes: SDROA (Standard Deviation of Return on Assets); MUD (Mudarabah Financing proportion); MUD^2 (MUD squared); MUS (Musharakah financing proportion); MUS^2 (MUS squared). Control variables: ROA (Return on Assets); SIZE (Log of total assets); LLR (Loan Loss Reserves); GDP (GDP growth); EXC (Exchange Rate); UNM (Unemployment)

Table 2
Correlation matrix

	SDROA	MUD	MUD^2	MUS	MUS^2	ROA	LLR	SIZE	GDP	EXC	UNM
SDROA	1.00										
MUD	-0.03	1.00									
MUD^2	0.02	0.92	1.00								
MUS	-0.09	0.12	0.04	1.00							
MUS^2	-0.07	0.06	0.01	0.89	1.00						
ROA	0.17	0.04	0.06	-0.17	-0.11	1.00					
LLR	0.09	-0.05	-0.03	-0.01	-0.03	-0.30	1.00				
SIZE	-0.25	-0.04	-0.06	-0.20	-0.31	0.02	-0.04	1.00			
GDP	0.08	0.00	-0.07	0.02	0.01	0.19	-0.24	0.05	1.00		
EXC	-0.16	0.35	0.20	0.52	0.39	-0.15	0.02	-0.22	0.03	1.00	
UNM	-0.14	0.25	0.21	0.11	0.08	-0.18	0.14	-0.16	-0.30	0.37	1.00

Notes: SDROA (Standard Deviation of Return on Assets); MUD (Mudarabah Financing proportion); MUD^2 (MUD squared); MUS (Musharakah financing proportion); MUS^2 (MUS squared). Control variables: ROA (Return on Assets); SIZE (Log of total assets); LLR (Loan Loss Reserves); GDP (GDP growth); EXC (Exchange Rate); UNM (Unemployment)

Table 3
Regression results

	2-Year Rolling Windows	3-Year Rolling Windows	4-Year Rolling Windows	5-Year Rolling Windows	6-Year Rolling Windows
	Coefficient (standard error)	Coefficient (standard error)	Coefficient (standard error)	Coefficient (standard error)	Coefficient (standard error)
	(1)	(2)	(3)	(4)	(5)
Constant	0.0733***	0.0818***	0.0822***	0.0602***	0.0660***
	(0.0250)	(0.0281)	(0.0240)	(0.0167)	(0.0217)
MUD	-0.0448	0.0083	0.0280	0.0020	0.0044
	(0.0331)	(0.0321)	(0.0366)	(0.0425)	(0.0444)
MUD^2	0.1767	-0.0101	-0.0967	-0.0318	-0.0478
	(0.1179)	(0.0845)	(0.1091)	(0.1199)	(0.1197)
MUS	0.0355*	0.0428**	0.0503***	0.0411***	0.0412**
	(0.0202)	(0.0215)	(0.0183)	(0.0144)	(0.0192)
MUS^2	-0.0674*	-0.0826**	-0.0987***	-0.0787***	-0.0805**
	(0.0364)	(0.0381)	(0.0344)	(0.0244)	(0.0332)
ROA	0.0545	0.0417	0.1703*	0.1459**	0.1359*
	(0.1089)	(0.1472)	(0.0985)	(0.0638)	(0.0726)
LLR	0.0593	0.0584	0.0806*	0.1496**	0.0483
	(0.0539)	(0.0505)	(0.0448)	(0.0666)	(0.0309)
SIZE	-0.0070***	-0.0075***	-0.0074***	-0.0052***	-0.0050**
	(0.0024)	(0.0026)	(0.0023)	(0.0016)	(0.0020)
GDP	0.0558*	0.0293	-0.0030	0.0273	-0.0023
	(0.0318)	(0.0235)	(0.0336)	(0.0239)	(0.0197)
EXC	-0.0029**	-0.0037***	-0.0035**	-0.0022*	-0.0031*
	(0.0012)	(0.0012)	(0.0014)	(0.0012)	(0.0016)
UNM	-0.0005	-0.0006*	-0.0009***	-0.0012***	-0.0012**
	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0005)
Adjusted R^2	0.0723	0.0743	0.1430	0.2235	0.0924

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%.
Regression results of SDROA (Standard Deviations of Return on Assets) on MUD (Mudarabah Financing proportion); MUD^2 (MUD squared); MUS (Musharakah financing proportion); MUS^2 (MUS squared). Control variables: ROA (Return on Assets); SIZE (Log of total assets); LLR (Loan Loss Reserves); GDP (GDP growth); EXC (Exchange Rate); UNM (Unemployment).

correlations analysis between variates based on the 2-year SDROA analysis. Notably, some variables are extremely associated: (1) MUD and MUD^2 (0.92); and (2) MUS and MUS^2 (0.89). VIF test was applied to investigate this issue further. The result did not indicate any greater than 10 VIF. Henceforth, there is no serious problem of multi-collinearity[1].

Table 3 shows the random-effect regression results of SDROA on MUD,

[1] For briefness, this paper does not present the result of VIF test. Interested parties may request the result.

MUD^2, MUS, MUS^2, and the relevant control variables, using 2-year rolling windows (column 1) up to 6-year rolling windows (column 5). Based on Eq. (1), Table 3 presents the linear and non-linear association regression results between Mudarabah and Musharakah financing with earnings volatility.

The results from the 2-year SDROA rolling windows (column 1) up to the 6-year rolling windows (column 5) exhibit robust results. Mudarabah and Musharakah tend to associate with Islamic bank's earnings volatility. The results showed that Mudarabah financing had neither a linear nor non-linear relations with earnings volatility. The insignificant influence of Mudarabah on earnings volatility can be caused by the proportion of Mudarabah financing that is still relatively low, as shown in the descriptive statistics (Table 1). This finding corroborates the studies of Jiménez and Saurina (2004) and Mercieca et al. (2007), who found that the smallest proportion loan type did not affect bank risk.

At the same time, as seen in columns 1 to 5, the results showed that Musharakah financing influenced Islamic bank earnings volatility linearly and non-linearly. The greatest significance of Musharakah financing on earnings volatility was in the 4-year and 5-year periods of earnings volatility when the linear and non-linear influences were significant at the 1% level. The weakest influence of Musharakah financing on earnings volatility was in the 2-year rolling windows of earnings volatility when the linear and non-linear effects were only significant at the 10% level.

The inverse U-shaped Musharakah influence may indicate the existence of an optimum proportion, which maximises earnings volatility. After exceeding the optimum proportion, Musharakah will tend to subdue earnings volatility. According to the regression coefficients of Eq. (1), the approximate optimum Musharakah is calculated using the partial derivative of SDROA with respect to MUS, and equate the derivative to nil. According to Table 3, column (4), it is found that SDROA was at its highest level when the Musharakah proportion was approximately 25.48%[2]. Based on Table 3, column (5), SDROA is the highest when the Musharakah proportion is about 26.11%[3]. The overall non-linear influence of Musharakah financing on earnings volatility (column 1 to column 5) shows that Musharakah proportion higher than 26% may lower earnings volatility.

The non-linear association of Musharakah on earnings volatility is in line with the strand of literature, which advocates that Profit-Loss Sharing financing will make Islamic banks have better performance in terms of reducing risk and increasing stability. PLS financing stimulates Islamic bank to better due diligence and tighter monitoring, which then also reduces excessive and imprudent lending (Ahmed, 2010; Zeineb & Mensi, 2014).

[2] Based on Table 3, column (4), it is found that $\delta SDROA/\delta MUS=0.0503 - 0.1974MUS=0$. Henceforth, the maximum SDROA value is attained when MUS=0.2548.

[3] Based on Table 3, column (5), $\delta SDROA/\delta MUS = 0.0411 - 0.1574MUS= 0$. Henceforth, the maximum SDROA value is attained when MUS=0.2611.

Robustness Checks

To check the robustness of the results, this study performed robustness checks by including region dummy variables covering the Middle East, South Asia, and Southeast Asia. The inclusion of these variables would capture the time-invariant factors which influenced Islamic bank earnings volatility. These factors may include the different levels of financial market development and policies in each region, which differ across the regions but are relatively constant throughout the study period. The complete results are presented in Table 4.

Table 4
Robustness checks

	2-Year Rolling Windows	3-Year Rolling Windows	4-Year Rolling Windows	5-Year Rolling Windows	6-Year Rolling Windows
	Coefficient (standard error)	Coefficient (standard error)	Coefficient (standard error)	Coefficient (standard error)	Coefficient (standard error)
	(1)	(2)	(3)	(4)	(5)
Constant	0.0750**	0.0840***	0.0843***	0.0627***	0.0643***
	(0.0259)	(0.0288)	(0.0251)	(0.0182)	(0.0226)
MUD	-0.0692*	-0.0289	-0.0099	-0.0284	-0.0319
	(0.0366)	(0.0370)	(0.0452)	(0.0449)	(0.0461)
MUD^2	0.2266*	0.0779	-0.0082	0.0333	0.0196
	(0.1235)	(0.0913)	(0.1263)	(0.1217)	(0.1221)
MUS	0.0483**	0.0594**	0.0654***	0.0557***	0.0549**
	(0.0224)	(0.0246)	(0.0218)	(0.0174)	(0.0223)
MUS^2	-0.0772**	-0.0963**	-0.1104***	-0.0920***	-0.0890**
	(0.0376)	(0.0402)	(0.0368)	(0.0273)	(0.0363)
ROA	0.0467	0.0337	0.1629*	0.1406**	0.1275*
	(0.1084)	(0.1461)	(0.0976)	(0.0613)	(0.0683)
LLR	0.0566	0.0552	0.0767*	0.1457**	0.0460*
	(0.0538)	(0.0497)	(0.0437)	(0.0636)	(0.0263)
SIZE	-0.0075***	-0.0083***	-0.0082**	-0.0062***	-0.0058**
	(0.0025)	(0.0028)	(0.0025)	(0.0019)	(0.0023)
GDP	0.0574*	0.0358	0.0055	0.0331	0.0047
	(0.0315)	(0.0238)	(0.0358)	(0.0234)	(0.0190)
EXC	-0.0018	-0.0023**	-0.0020	-0.0007	-0.0011
	(0.0011)	(0.0011)	(0.0013)	(0.0014)	(0.0015)
UNM	-0.0006*	-0.0008**	-0.0010***	-0.0013***	-0.0014***
	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0005)
Region Dummy	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.0765	0.1496	0.1560	0.2382	0.1168

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%.
Regression results of SDROA (Standard Deviations of Return on Assets) on MUD (Mudarabah Financing proportion); MUD^2 (MUD squared); MUS (Musharakah financing proportion); MUS^2 (MUS squared). Control variables: ROA (Return on Assets); SIZE (Log of total assets); LLR (Loan Loss Reserves); GDP (GDP growth); EXC (Exchange Rate); UNM (Unemployment) Region Dummy representing the Middle East, South Asia, and Southeast Asia regions.

The robustness tests based on 2-year to 6-year rolling windows consistently confirmed that the linear and inverse U-shape influence of Musharakah (MUS) on earnings volatility (SDROA) was significant. Based on the 2-year rolling windows, the highest level of earnings volatility was achieved when MUS is at 31.28%[4]. For the other rolling windows, this research found that the optimum level ranged between 29.62% and 30.84%. Based on the 2-year rolling windows, Mudarabah financing showed marginally significant linear and non-linear (U-shape) association with earnings volatility. However, the results were inconsistent for other rolling windows. Based on the regression results and the optimum level of Musharakah financing, it appeared that (on average), only Islamic banks in the South Asia region had reached the highest level of 31%. Based on Table 1, the average Musharakah proportion in this region reached 34.15%. The results of this research suggest that Islamic banks in other regions should provide more Musharakah financing to achieve optimum proportions and reduce their earnings volatility. It can be deduced that increasing Musharakah financing will incentivise Islamic banks to improve due diligence and monitoring.

CONCLUSIONS

The study aimed to analye the associations of PLS financing (Mudarabah and Musharakah) with Islamic banks' earnings volatility. Using Islamic bank data from Southeast Asia, South Asia, and the Middle East, this research obtained the unexpected result that Mudarabah did not reveal linear or non-linear relations with earnings volatility. In contrast, the results of this research indicated that Musharakah demonstrated significant linear and curvilinear (inverse U-shape) associations with earnings volatility. The insignificance relation of Mudarabah with earnings volatility maybe because of the relatively small proportion of such financing. The non-linear (reverse U-shaped) Musharakah influences on earnings volatility suggests that relatively low Musharakah proportion tends to increase earnings volatility. However, our results suggest that if the Musharakah proportion of total financing is higher than 31%, the Islamic bank may reduce volatility. The result is consistent with the strand of literature, which stated that Profit-Loss Sharing financing might drive the Islamic bank to have better performance in terms of reducing risk and increasing its stability. The data indicates that only Islamic banks in South Asia region have an average Musharakah proportion higher than 31%. Islamic banks in other regions are encouraged to provide more Musharakah financing to reduce their earnings volatility.

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[4] Based on Table 4, column (1), δSDROA/ δMUS = 0.0483- 0.1544MUS= 0. Henceforth, maximum SDROA is obtained when MUS=0.3128.

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The Effects of Public Service Quality and Public Education on Public Trust in Bekasi City: A Comparison of the Services for the General Public and for Businesses

Anton Wachidin Widjaja* and Budi Indrawati

Management Department, Faculty of Economics, Universitas Bhayangkara Jakarta Raya, South Jakarta, Jakarta, 12140, Indonesia

ABSTRACT

The lower quality of public services in developing countries like Indonesia provides an interesting opportunity for studying the effects of public service quality on both public satisfaction and public trust. Improvements in both public education and public expertise stimulate public institutions to improve their quality of services. This study examined the effects of both public service quality and public education in Bekasi Municipality on public satisfaction and public trust. This study focused on Public Health Department which provided services for the general public and People's Economic Department which provided services for business people. Based on the findings collected from a study involving 100 respondents from each department, this study showed that public service quality affected public satisfaction. In Public Health Department, public satisfaction also affected public trust. However, this was not the case with People's Economic Department. In Public Health Department, public education affected public expertise, and in turn affected public trust. Public service quality does not directly affects public trust, but does affects public trust indirectly through public satisfaction. In People's Economic Department, public expertise affected both public satisfaction and public trust. This study found that the characteristics of services provided by the two departments determined the effect of public service quality and public education on public satisfaction and public trust.

Keywords: Public services, public education, public expertise, public satisfaction, public trust

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E-mail addresses:
antonwachidinwidjaja@yahoo.com (Anton Wachidin Widjaja)
b_indrawati@yahoo.co.id (Budi Indrawati)
* Corresponding author

INTRODUCTION

Service quality is one of today's most interesting and discussed topics, especially in organizations that provide services that experience continual change, particularly in

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the field of communication and information technology. Discussions about service quality are usually tied to the constructs of customer satisfaction and customer loyalty (Caruana, 2002). In public institutions, the strategic issue is not concerned with developing public loyalty to maintain the utilization of public services. Instead, efforts to build public trust in public institutions are highly dependent upon the capability of public institutions for creating value for the people who receive their services. Public distrust is often the result of perceived lower quality of public services. Further, public distrust can create problems, and leads to public restlessness that in turn can degrade a region's administrative performance and even a nation's performance.

In the era of openness and easier access to information about the availability of services in the public sector, public trust is becoming an even more important issue for institutions that provide public services. Public expectation of the quality of services is rising in tandem with the easier access to information about the quality of available services. Public trust can only be achieved when the public are satisfied with the services they receive, and their expectations are fulfilled. Higher levels of public trust and public satisfaction indicate good governance by public institutions (Bouckaert & Van de Walle, 2003). Therefore, service providers must always maintain their quality of services (Eisingerich & Bell, 2008).

In developing countries such as in Indonesia, the majority of the people do not have complete knowledge of the services that are provided by the public sector. Oftentimes, they are not aware of what kinds of services are available to them or how to get those services from the public institutions. Public expertise is important for creating satisfaction in public services when the public are made aware of what kinds of services are available to them. When people are not aware of the services that are available, they cannot derive satisfaction from receiving them.

Public expertise is also important for creating public trust in public institutions. Proper knowledge or information about services being offered creates public trust in public service providers because people feel that they are not being misinformed or kept in the dark about the services that should be their right to claim. Consequently, it is important for public institutions to inform the general public about the services provided for them. This can be done through public education. The civil apparatus and public institutions need to disseminate complete and accurate information about the services being offered to citizens in order to eliminate confusion and to provide a complete picture about services that are available.

This study examined how public educational efforts by the civil apparatus and public institutions could improve public expertise related to services being offered and how public service quality could create both public satisfaction and public trust in Bekasi City. Bekasi is located along the eastern border of Jakarta, Indonesia's capital city. It is Indonesia's most populated

suburban city incorporated to Jakarta, and one of the most populated worldwide. The study focused on two departments in Bekasi Municipality, the Public Health Department, which provides services for the general public, and the People's Economic Department, which provides services for business people. These two departments were chosen because they represented the lower and middle segments of society; the Public Health Department served lower and middle class residents of the city, while the People's Economic Department served small and medium enterprises. The role of public education in influencing public expertise in the city is important as about 27 % of the total population of Bekasi had a level of education below Senior High School (Central Bureau of Statistics of Bekasi City, 2016). There were still many residents of the city who did not know or who were not familiar with the procedures and forms of the services provided by these public offices. This study was conducted at time when the regional government had been engaged in efforts to strengthen regional autonomy to be able to continually provide better services in a more responsible and transparent manner. The relatively low quality of services provided by many public institutions in Indonesia was caused largely by the poor quality of human resources quality, the government's limited resources and the lack of budgetary support (Nugraha et al., 2015).

This paper consists of six sections namely introduction, literature review, research methodology, results, discussion, and conclusion. The literature review outlines the research variables, the research model and the hypotheses. The conclusion based on the testing of the hypotheses and the implications that can be drawn from the research is given at the end of the paper.

Literature Review

Public Education. Public institutions need to continually educate the general public on the services that are being offered to them. Public education is the effort by officials in a public institution to provide complete and accurate information about the available services and the process of delivering those services to the public. To properly educate the public, officials from public institutions need to have skills and capabilities to deliver information to the public (Eisingerich & Bell, 2007). The meaning of public education as market education can be understood from the definition given by Meer (1984) as any purposeful, sustained and organized learning activity that is designed to impart attitudes, knowledge or skills to customers or potential customers by a business or industry. It can range from self-instructional material for a particular product to a formal course related to a product or service (Suh et al., 2015).

Public Expertise. The rapid advance and the widespread use of communication and information technology have made people more aware of current happenings and astute in judging the services provided by the public sector. Public expertise is based on public knowledge and experience about what constitutes a good service (Johnson & Grayson, 2005). Public expertise results in

public knowledge of services that should be available to the public and how people may obtain those services (Eisingerich & Bell, 2008).

Public Service Quality. Service quality can be viewed from two perspectives: the quality of service output (outcome) and the interaction between a service provider and its customers (process). Both determine the assessment of service quality as perceived by customers (Eisingerich & Bell, 2008). For public services, both perspectives are considered by the users of those services in determining the level of service quality. Gronroos (1984) suggested that the measurement of quality service must be correlated with a comparison of perceived service performance and the expected performance by customers or the users of those services (Brady & Cronin, 2001). Wang et al. (2010) defined service quality as the quality of service level in a system assessed by users based on the evaluation of the received services against users' expectation of the services (Nulhusna, 2017). Meanwhile, Parasuraman et al. (1988) defined service quality as the overall assessment by customers of the services they received; this is generally accepted as an antecedent to customer satisfaction.

Public Satisfaction. Satisfaction is a core concept in modern marketing management that can be used as a construct for measuring performance; therefore, it can be used to improve and sustain company performance (Piercy, 1994). Satisfaction increases where the customer receives more value in consuming a product. Oliver (1980) defined service user satisfaction as a cognitive and affective reaction to a service incident. A service user would always make comparisons between the service that they expected and the service that they actually received (Caruana, 2002). Public institutions must be able to avoid two failures in the provision of services to the general public in order to create public satisfaction: failure to provide what citizens want as customers and failure to provide service against pre-established criteria (Van de Walle, 2016).

Public Trust. Trust is defined as the customers' confidence in a service/seller's reliability and integrity (Morgan & Hunt, 1994). In the context of public services, trust is created when the public's expectation of public institutions as being trustworthy, honest and responsible institutions are truly manifested and can be perceived (Eisingerich & Bell, 2008). In public institutions, trust is viewed from the sociological perspective; trust is applicable to relationships among people rather than to their psychological states taken individually (Lewis & Weigert, 1985). Public trust in an institution should lead to a reduction in the complexity of the process of providing and obtainng public services through the provision of high quality services (Nulhusna et al., 2017). Pestoff (2009) explained that the existence of trust would minimize or eliminate opportunistic behavior (Fledderus, 2015). A trusting relationship between service users and service providers will increase the value that can be created from the relationship.

MATERIALS AND METHODS

Research Model and Hypotheses

The higher the educational level of the general public, the higher the demand for excellent services from the public sector. Public education will affect public satisfaction, and this in turn will determine public trust in public institutions. As service providers for the general public, public institutions need to pay attention to the dynamic relationship between public education, public expertise and the quality of public services in determining public opinion and attitudes towards institutions (Eisingerich & Bell, 2008).

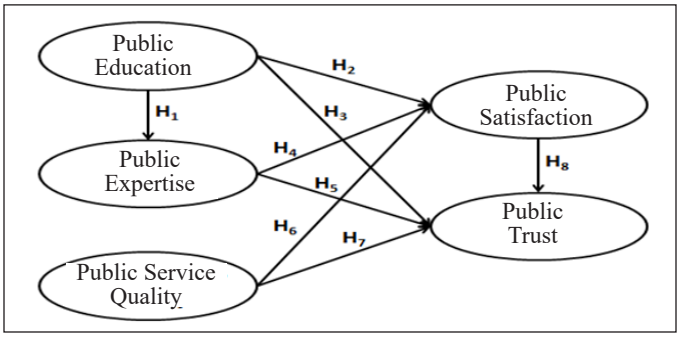

Figure 1. Research model

Honebein and Cammarano (2005) defined customer education as a company's investments in improving customer expertise in relation to the goods and services it markets. In the public sector, public education includes the instructional activities that can increase public knowledge in order to determine the value of public services. Providing complete and accurate information is the most important aspect in educating people. Through dissemination of complete information, a well-educated citizenry will have expertise related to the types of service that are available to them (Eisingerich & Bell, 2007). Public education helps people fully understand the proper usage of a public service and assesses the quality of perceived public services (Suh et al., 2015). From this discussion, the following hypothesis can be formulated:

H_1: Public education positively affects public expertise.

For a private company to distinguish itself from its competitors, customer education through the provision of customer satisfaction and the construction of a long-term trustworthy relationship is key. Hennig-Thurau (2000) explained that public education improved the ability of the population to obtain more public services. Departmental officials and offices need to provide complete information about the processes and outcomes of their services in order to create both public satisfaction and public trust (Eisingerich & Bell, 2008). The more complete and clear information provided to the public will increase the public judgment on the responsibilities of public institutions. The quality of the

information and the system provided by public institutions can develop public trust (Nulhusna et al., 2017). Better-educated people can utilize public services more effectively because they understand the applications more thoroughly and can assess service performance more accurately (Suh et al., 2015). Based on this reasoning, the following two hypotheses can be formulated:

H_2: Public education positively affects public satisfaction.

H_3: Public education positively affects public trust.

The greater public expertise related to the services available from public institutions as well as the greater ease of access to those services, the greater public satisfaction derived from using the services because the services met their expectations of users. The ability of public sector users to use public services properly results in a higher degree of customer satisfaction (Shih & Venkatesh 2004). Greater public expertise related to available services creates public trust in public institutions (Eisingerich & Bell, 2008). Public expertise builds up the public's confidence in public institutions as they feel assured of being able to obtain good services, and this confidence further increases public trust. This allows for the formulation of the following hypotheses:

H_4: Public expertise positively affects public satisfaction.

H_5: Public expertise positively affects public trust.

High service quality decreases errors that can create disappointment among service users. Superior service quality creates attentive behavior that is advantageous for public services (Zeithaml, Berry, & Parasuraman, 1996). Public perception of the dimensions of public service quality shapes public attitudes towards public institutions (Bell et al., 2005). When people perceive high service quality of public services, public trust in public institutions will also improve (Eisingerich & Bell, 2008). People can then determine the level of public service, and this determines the value of the public service. The following two hypotheses can be formulated based on this reasoning:

H_6: Public service quality positively affects public satisfaction.

H_7: Public service quality positively affects public trust.

Public assessment of all aspects of services provided by a public institution is reflected in the level of public satisfaction, which affects public trust in public institutions (Johnson & Grayson, 2005). Satisfaction felt by the public will further strengthen their relationship with public institutions because people perceive high value in all dimensions of public services (Yeh & Li, 2009). Based on this, the following hypothesis can be formulated:

H_8: Public satisfaction positively affects public trust.

Research and Analysis Method

The respondents of this study were individuals who had received services that were available from two public institutions in Bekasi Municipality, Indonesia, namely the Public Health Department and the People's Economic Department. The total sample included 100 respondents selected randomly from each department's office. Data were collected using the survey method and questionnaire instruments. Items in the questionnaire used as indicators for the research variables were measured using a 5-point Likert scale.

The measurement for the public service quality construct (25 items) was adapted from the items of SERVQUAL instruments that were developed by Parasuraman et al. (1988, 1991). These items illustrate the five dimensions of service quality namely tangibles, reliability, responsiveness, assurance, and empathy. SERVQUAL instruments used in this study focused on service-delivery processes (Yuen & Thai, 2015). The five items that were used to measure the public satisfaction construct were developed based on suggestions made by Parasuraman et al. (1988) to demonstrate the perceived experience after receiving a service. Measurement scales for the public education construct (six items) and the public expertise construct (three items) were adapted from Eisingerich and Bell (2008). In this research, the public trust construct (six items) was operationalized to the extent to which people said they trusted organizations or people in the organization (Fledderus, 2015).

Issues that were addressed in this study corresponded to the effects of the independent variables of public service quality and public education on the dependent variables of public satisfaction and public trust through the creation of public expertise. To test the correlations between the variables, the path analysis procedure was used as applied in AMOS 18. Before using path analysis, we used a two-step technique to obtain observed variables in each construct used in the research (Anderson & Gerbing, 1988). Because the number of construct variables in this research was five, the use of 100 respondents could be processed by applying the two-step technique. The determination of sample size heavily depends on the variability within the sample. The variance, or heterogeneity of the population, is the first necessary bit of information. In statistical terms, this refers to the standard deviation of the population. Only a small sample is required if the population is homogeneous, as in this study where the population tended to be homogeneous (Zikmund et al., 2013). The use of a small number of respondents can result in larger error variance (error mean square) that can in turn lead to an insignificant impact of the independent variables on the dependent variables. This is because the error variance acts as the denominator of the independent variable variance. With increasing error mean square, the calculated statistic become smaller compared to the critical value, causing less significant effect of the independent variables. However, the findings of this study suggested that the effect of the

independent variables on the dependent variables remained significant. Although the sample used only 100 respondents, the obtained results were significant, and thus, the concern about the occurrence of a large variance error was eliminated.

RESULTS

Of the 100 respondents who were sampled from among users in the Public Health Department office, the majority fell within the productive age bracket of 20-55 years old. A total of 55 of the respondents were males, while the majority had senior high educational qualification (51%). Of the 100 respondents who were sampled from among users in the People's Economic Department office, the majority of the respondents fell within the productive age bracket of 20-45 years old. A total of 53 of the respondents were females, and the majority had senior high educational qualification. The demographic summary of the respondents is summarized in Table 1.

The description of the standard deviation and the mean of each research variable is shown in Table 2.

Table 3 shows the results from hypotheses testing and the estimated parameter for each research variable. Table 3 shows that H_1, H_5,

Table 1
Demographic summary of survey respondents

Demographic Variables	Public Health Department (%)	People's Economic Department (%)
Age (Years)		
< 20	9	3
20–35	27	27
36–45	28	47
46–55	28	18
56–65	8	5
Gender		
Male	45	47
Female	55	53
Education		
Junior High School	3	18
Senior High School	51	71
Diploma	21	5
Bachelor's Degree	25	6

Table 2
Description of measures

Variables/Dimensions	Public Health Department		People's Economic Department	
	Mean	SD	Mean	SD
Public service quality	3.67	0.53	3.78	0.39
Tangibles	3.82	0.45	3.84	0.37
Reliability	3.81	0.47	3.65	0.44
Responsiveness	3.81	0.45	3.76	0.39
Assurances	3.81	0.46	3.92	0.29
Empathy	3.07	0.41	3.62	0.41
Public education	3.57	0.43	3.91	0.30
Public expertise	3.45	0.43	3.86	0.36
Public satisfaction	3.63	0.44	3.66	0.46
Public trust	3.66	0.44	3.80	0.46

H_6, and H_8 were supported by the research data. These results indicated that public education did not have an impact on either public satisfaction or public trust and it only affected public expertise. Public satisfaction was only affected by public service quality. Public trust was affected by both public expertise and public service quality. Based on the path analysis, it was seen that public service quality did not directly affect public trust, but did indirectly affect public trust via the creation of public satisfaction.

Table 4 summarises the overall fit indices of the structural model for the Public Health Department.

Table 3
Results of hypotheses testing for the Public Health Department

Construct	Hypothesis	β	SE	CR	P	Support
PEd → PEx	H1	0.284	0.068	2.897	**	Yes
PEd → PS	H2	0.109	0.074	0.273	0.273	No
PEd → PT	H3	0.154	0.103	1.679	0.093	No
PEx → PS	H4	0.021	0.099	0.224	0.822	No
PEx → PT	H5	0.189	0.138	2.208	**	Yes
SQ → PS	H6	0.460	0.019	4.558	**	Yes
SQ → PT	H7	0.160	0.029	1.566	0.117	No
PS → PT	H8	0.379	0.142	4.052	**	Yes

Notes: β = Standardized Regression Weight, SE = Standardized Error, CR = Critical Ratio. ** < p-value 0.05.

Table 4
Fit indices for the structural model of the Public Health Department

Quality-of-fit measure	Recommended value	Structural model
Chi-square/ Degree of freedom value (df)	≤ 3.00	5.352
Tucker Lewis index (TLI)	≥ 0.95	0.367
Comparative fix index (CFI)	≥ 0.94	0.958
Incremental fix index (IFI)	≥ 0.90	0.963
Root mean square of error approximation (RMSEA)	≤ 0,08	0.212
Goodness of fit index (GFI)	≥ 0.90	0.980

Table 5 shows the results from the hypotheses testing and the estimated parameters from each research variable. Table 5, shows that only H_4, H_5, and H_6 were supported by the research data. These results indicate that in the People's Economic Department, public expertise played a significant role in the creation of both public satisfaction and public trust. Public service quality as perceived by the public only affected public satisfaction.

Table 6 summarises the overall fit indices of the structural model for the People's Economic Department.

Table 5
Results of hypotheses testing for the People's Economic Department

Construct	Hypothesis	β	SE	CR	P	Support
PEd → PEx	H_1	0.062	0.060	0.614	0.539	No
PEd → PS	H_2	-0.006	0.081	-0.077	0.939	No
PEd → PT	H_3	0.178	0.102	1.803	0.071	No
PEx → PS	H_4	0.159	0.129	2.091	**	Yes
PEx → PT	H_5	0.324	0.164	3.401	**	Yes
SQ → PS	H_6	0.647	0.021	7.884	**	Yes
SQ → PT	H_7	0.039	0.033	0.306	0.760	No
PS → PT	H_8	0.053	0.125	0.432	0.666	No

Notes: β = Standardized Regression Weight, SE = Standardized Error, CR = Critical Ratio. ** < p-value 0.05.

Table 6
Fit indices for the structural model of the People's Economic Department

Quality-of-fit measure	Recommended value	Structural model
Chi-square / degree of freedom value (df)	≤ 3.00	3.058
Tucker Lewis index (TLI)	≥ 0.95	0.769
Comparative fix index (CFI)	≥ 0.94	0.977
Incremental fix index (IFI)	≥ 0.90	0.979
Root mean square of error approximation (RMSEA)	≤ 0.08	0.144
Goodness of fit index (GFI)	≥ 0.90	0.988

DISCUSSIONS

The results of the data analysis showed that in the People's Economic Department, public expertise played an important role in creating both public satisfaction and public trust among the respondents in this research. The mean score of public expertise for the People's Economic Departement (3.86) was greater than for the Public Health Departement (3.45). Public perception of service quality affected only public satisfaction but not public trust. In the Public Health Department, public satisfaction was created through both public education and public service quality. Both public expertise and public satisfaction affected public trust.

Results of this study showed that public expertise affected both public satisfaction and public trust in the People's Economic Department, while public expertise only affected public trust in the Public Health Department. This was probably due to the characteristics of the services that were offered to the general public, which were different from those offered to business people. Services for the general public use simpler procedures compared to those for business people. Note that the mean score for public education that was lower for the Public Health Department (3.57) compared to the People's Economic Department (3.91). Bouckaert and Van de Walle (2003) suggested that individual characteristics

affected the satisfaction level among users of the services. Public expertise that is formed based on people's experiences and knowledge creates expectations for a certain level of service quality. The experiences and knowledge that drive both public satisfaction and public trust among the general public are different from those that drive satisfaction and trust among business people.

Public education only affects public expertise related to services provided by the Public Health Department. Public institutions need to know the level of expertise of their users (Eisingerich & Bell, 2008). In the context of services for the general public, more intensive educational efforts are usually needed because public institutions have to cater for a more diverse community, while for business people, public institutions need to create easy access to information so that business users can gain knowledge and experience independently and on their own terms.

Public service quality was the most important construct for creating public satisfaction in both departments. Public service providers need to give special attention to service quality aspects namely; easy access, low cost, and user friendly because service quality is the most important factor for creating public satisfaction. These public service characteristics have not been given enough attention as they should have been (Ruyter et al., 1997). Public institutions need to give special attention to public service quality and recognize its importance by identifying factors that create public satisfaction as well as dissatisfaction, because these factors are usually different (Johnston, 1995).

CONCLUSIONS

The findings of this study showed the dynamics of service delivery through public service quality. The findings supported the premise that the efforts of public education to develop public satisfaction and public trust were determined by the characteristics of the available service. This study showed different results for services that were provided for the general public and services that were provided for business people. Thus, the development of public satisfaction and public trust needs to be examined within the specific context of the public services that are furnished (Bouckaert & Van de Walle, 2003).

The implications of this study are important for public institutions to consider in designing public service quality and in delivering proper public education suited to service characteristics. Lack of information provided to the general public by the Public Health Department may result in lack of knowledge among the general public about procedures and types of service available. As a public service provider, the Public Health Department must provide clear information and be transparent to the general public about the services provided and how to obtain them. Although the results showed that public education did not affect public satisfaction and public trust directly, they highlighted that public education did affect public satisfaction indirectly.

In order to avoid public service failure, clear information delivery must be made available as clear information reduces opportunistic behavior due to poor service delivery (as a deliberate act of self-interest by the office apparatus). Such failure can also occur due to ignorance that is perpetrated by the office apparatus (Van de Walle, 2016). This study showed that the mean score of empathy for the Public Health Department was relatively low (3.07). The general public considered that the Public Health Department lacked in empathy. This study showed that quality of public service offered to the general public affected public trust indirectly through public satisfaction. In contrast to services available to the general public, the services provided to business people by the People's Economic Department must focus on building expertise and the department strive to improve their service quality in order to build public trust.

Further studies are needed to examine the requirements of public users because their demands will determine their expectations; such a line of study can yield effective ways to create public satisfaction. This in turn can provide understanding on ways to create public trust. Further studies should also be undertaken to examine the characteristics of various public services in different public institutions. Other aspects that need to be examined are the characteristics of individual users of public services based on their experience and expertise in those services. This will provide important insight into studying the effects of public expertise on public trust.

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The Influence of Banking Profitability on Share Price and the Moderating Role of Capital Adequacy Ratio and Foreign Exchange Transaction: Comparative Study of Government and Private Banks in Indonesia

Meliza Zafrizal* and Rasidah Mohd Said

UKM-Graduate School of Business, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia

ABSTRACT

Bank share prices in Indonesia have the tendency to fluctuate in the last ten years. Reducing Net Interest Margin issue results in some investors' hesitation to invest their funds in bank's shares. Up until now, ten biggest banks in Indonesia like MANDIRI, BNI, BRI, BTN, BCA, DANAMON, PERMATA, PANIN, CIMB NIAGA, and MAYBANK INDONESIA [formerly BII]) have been playing a dominant roles in the banking sector share market. Therefore, this research analyzed and compared the influence of bank's profitability to the share price of these ten biggest government and private banks in Indonesia. There are many previous studies on banking profitability and share price but only a few studies analyze banking profitability and share price using bank's capital adequacy ratio and foreign exchange transaction as moderators. Random Effect model was applied to measure the influence of bank profitability on share price using capital adequacy ratio and foreign exchange transaction as moderators. Results indicated that the profitability of both government and private banks had an influence on the share price. Capital adequacy ratio can moderate the influence of government bank profitability on share price but it cannot moderate the influence of private bank profitability on share price. Foreign exchange transactions can enhance the influence of government bank profitability on share price. Nevertheless, it cannot moderate the influence of private banks' profitability on share price.

Keywords: Bank share price, bank profitability, capital adequacy ratio, foreign exchange transaction

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E-mail addresses:
zp03072@siswa.ukm.edu.my (Meliza Zafrizal)
rasidah@ukm.edu.my (Rasidah Mohd Said)
* Corresponding author

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INTRODUCTION

Reducing net interest margin (NIM) has become one of the issues that may contribute to the declining of share prices. According to Doyran (2013), NIM is an important indicator of bank performance because it directly affect cost of borrowing and lending within the financial system. Moreover, NIM is the most important variable of the financial sector and it is generally explained as the difference between the lending interest rate and the borrowing interest rate of the total assets (Iftikhar, 2016). Currently, the operating cost of the operating revenue ratio of bank in Indonesia is higher than 85%. This ratio shows that Indonesian banking sector still has low efficiency because the higher this ratio, the lower the efficiency will be. As a result, the purpose of decreasing net interest margin is to raise bank's efficiency. Nevertheless, reducing net interest margin is viewed as decreasing banks' profit and it may disappoint market's and bank's shareholders. Hence, this circumstance may also affect the share prices to go down sharply. As a result, shareholders may sell their shares and new investor may be reluctant to invest in these shares. The above notion is supported by Maulana et al. (2015) who found that net interest margin as part of bank's earning that contributed to the changes in bank's share price in Indonesia. Furthermore, the decrease of the interest rates may also have affected net interest margin and profitability of banks in Indonesia. The reduction of this interest rate is in line with the Central bank of Indonesia's single digit rate policy, whose objective is to decrease the lending rate. The purpose of this policy is to develop the real sector because the high development of financial sector seems unsuccessful to develop real sector at this present time. On the other hand, the single digit interest will potentially reduce the margin and bank's revenue.

Besides lower NIM and single digit interest rate issues, capital adequacy, which is an important indicator of bank businesses, has also become an important banking issue in Indonesia. Olalekan and Adeyinka (2013) showed that capital adequacy ratio was an important determinant of banks profitability. In the last few years, Indonesia has witnessed quite a number of merging and acquisitions among banks in the country due to their capitalization issues which affect their profitability. High non-performing loan and competition to get third party funds make this capitalization issue even worse. Bank capital adequacy which is measured by capital adequacy ratio (CAR), is regulated by the central bank to ensure solvency of banks. Not only it serves as an important measure of the financial soundness of a bank, it also has an important influence on bank performance and profitability. Pranata (2015) revealed that the higher the capital adequacy ratio, the higher the profitability of the bank would be. However, the higher the bank's capital adequacy ratio, the higher banks should keep their fund in capital, thus the fund allocation in earning assets such as loan may decrease. Hence, the interest income from loan may decrease and this circumstance will reduce both banking

profitability and investor's dividend. As a result, the share price will go down. Nino et al. (2016), for instance, showed that increasing capital adequacy ratio would decrease the share price of banking institutions in Indonesia.

After the financial crisis in 1997, Rupiah exchange rate has a tendency to depreciate and fluctuate especially against the US dollar. The 2007-2008 global financial crisis caused Rupiah to depreciate even more and eventually affected the Indonesian macroeconomic condition. Rjoub et al. (2009) found that there was a relationship between stock return and some macroeconomics factors which included real exchange rates. This supports the findings by Humala and Rodriguez (2013) that macro financial uncertainty had a relationship with volatility of foreign exchange and stock markets. McPherson (2006) found that the connection between exchange rates and stock market correlations and volatilities extended beyond periods of extreme crisis. Thus, foreign exchange fluctuation may also have contribution to the bank's foreign exchange transaction. Global transactions lead to government banks and private banks in Indonesia to deal with foreign exchange transaction. As a result, these transactions may influence movement on bank profitability. Ghosh (2017) discovered that in the post crisis era, such positive influence of exchange rate derivatives on profits waned out as banks face greater challenge in successfully betting currency movements in a more volatile foreign currencies environment.

Recently, the bank share market trading is dominated by ten biggest banks in terms of their asset size in Indonesia. These banks comprises 4 government banks (Bank Mandiri, BNI, BRI, and BTN) and 6 private banks (BCA, Bank Permata, Bank Panin, Bank Danamon, CIMB NIAGA, and Maybank Indonesia [formerly known as BII]). These banks dominate banking activities in Indonesia such as collecting third party fund and distributing loan. Rosengard and Prasetyantoko (2011) discussed about Indonesia banking oligopoly and showed that these ten banks had a share about 65.4% of the total banking assets, 66% of the total third party funds, and 65.4% of the total outstanding loan in 2009. Moreover, these banks also play major role in the Indonesian financial sector and control more than half of the banking system assets. In fact, these ten biggest banks contribute to 61.64% of the total banking assets in Indonesia (Giri & Weelang, 2016).

Hence, this research analyzed the relationship between bank profitability and share price of these banks in Indonesia. Since the analysis focused on the traditional activity of banks; banks' profitability was measured by NIM. Heffernan and Fu (2008) argued that NIM was a better measurement of performance compared to the Return on Average Assets (ROAA) and Return on Average Equity (ROAE).

As discussed previously, capital ratio and foreign exchange influence profitability of banks (Al-Kayed et al., 2014; He et al., 2014; Olalekan & Adeyaninka, 2013; Pranata, 2015). These variables not only influence

profitability, but also have an impact on banks share price (Kim, 2003; Noman et al., 2012). Hence, this research work will contribute to the literature on banks' profitability and share price by investigating the role of capital adequacy ratio (CAR) and foreign exchange transactions as the moderator of the relationship between banks' profitability and share price.

Literature Review

Studies on banking institutions profitability are aplenty among others (Athanasoglou et al., 2008; Berger, 1995; Bourke, 1989; Molyneux & Thornton, 1992; Pasiouras & Kosmidou, 2007). These studies focused on various measures of profitability such as returns on assets and equity, as well as NIM. The volatility of interest rates which caused financial intermediaries experience financial problems have motivated Ho and Saunders (1981) to analyze the impacts of these rates volatility on banks' interest margin. Allen (1988) extended this study by employing different types of credits and deposits to the model. A different version of this model was also introduced by Angbazo (1997) whereby he included credit risk and interest rate risk to the model. Analyzing data of six countries of the European Union and the USA during the period of 1988-1995 and applying the model introduced by Ho and Saunders (1981), Saunders and Schumacher (2000) found that net interest margins of banks were influenced by various macroeconomic factors and regulations. Using data from Germany, France, the United Kingdom, Italy and Spain, Maudos and Fernandez de Guevara (2004) introduced the influence of operating costs into the model. Most recently, Chen and Liao (2011) empirically tested this model by applying the data of banking sectors of 70 countries, while Lopez-Espinoza et al., (2011) analyzed the determinants of interest margins in the years leading to the 2008 financial crisis and effects of different accounting reporting standards.

Following the above findings, the analysis of net interest margins was extended to include other factors such as share price of banks. Chu and Lim (1998), for example, found that share price performance was influenced by changes in profit. Rachmawati and Kristijanto (2009) showed that there was a positive simultaneous influence between net interest margins and share price of banks in Indonesia. According to Tan and Floros (2012a), there is a positive relationship between bank profitability, cost efficiency, banking sector development, stock market development and inflation in China. Moreover, Tan and Floros (2012b) found a positive relationship between bank performance and stock market volatility in China. Earlier, using a panel of six Singapore-listed banks for the period between 1992-1996, Chu and Lim (1998) found that the share price performance of these banks was influenced by the changes in their profit. Furthermore, Maulana et al. (2015) found a positive relationship between net interest margin and share price of Indonesian banking. On the other hand, Indiani and Dewi (2016) showed the negative and insignificant relationship

between net interest margin and share price. They revealed that net interest margin had no influence on the share price of banks' in Indonesia. Their regression analysis showed the insignificant value of the relationship between net interest margin and share price.

In addition to bank's profitability, previous studies have also shown other factors to have influenced banks' share price. A better capitalized bank is believed to be more profitable, resulting in a better performance of its share. Seetharaman and Raj (2011) found that profitability had a strong relationship with share price for banks in Malaysia. Using panel data of banks from various countries, Demirguc-Kunt et al. (2013) found that a stronger capital position was associated with better stock market performance. Ariff and Tunyarputt (2013) found that the market reacts positively to announcements of financing events that led to leverage ratios moving closer to their relative industry median debt equity ratio, and eventually caused increase share price. Al-Kayed et al. (2014) analyzed cross-country bank-level data of 19 countries for the period of 2003-2008, and found that Islamic banks' profitability responded positively to increase in equity (capital ratio). Pranata (2015) investigated the relationship between capital adequacy ratio and profitability of banks in Indonesia Stock Exchange. They revealed that share price responded positively to the banks' profitability. The findings by Rawlin et al. (2015), however, did not support the above results. They included capital adequacy variables in their analysis and found that both profitability and capital adequacy were negatively associated with the sample bank's share price. Similarly to Rawlin et al. (2015), Nino et al. (2016) found that share price responded negatively to the capital adequacy ratio of banking company in Indonesia.

The relationship between stock price and foreign exchange has been well documented. For instance, Kim (2003) investigated the existence of long run equilibrium relationship among stock price, inflation, interest rate, industrial production, and real exchange rate in the United States. Kim (2003) found a negative relationship between stock price and real exchange rate. Noman et al. (2012) investigated the causality between exchange rate and stock price in Bangladesh. However, they did not find any causality running on those variables. Bahmani and Saha (2015) reviewed some articles about exchange rate and stock prices, and found that exchange rate and stock prices could move in the same or opposite direction. Although studies on the stock price and foreign exchange link are abundant, only a few focused on banks' profitability. Recently, He et al. (2014) analyzed the influence of foreign exchange on bank profitability in the United States. Using data of 22 large banks in the USA, they found that banks' profitability was affected by foreign exchange fluctuations. Based on the above discussion, the following hypotheses were proposed:

H_1: There is a positive influence between banks' profitability and share price.

H_2: There is a negative influence of banks' profitability and capital adequacy ratio on share price.

H_3: Capital adequacy ratio enhances the influence of banks' profitability on share price.

H_4: There is a positive influence of banks' profitability and foreign exchange transaction on share price.

H_5: Foreign exchange transactions enhance the influence of banks' profitability on share price.

MATERIALS AND METHODS

This research used one independent variable and one dependent variable. The independent variable was NIM while the dependent variable in this research was bank share price. In addition, Capital Adequacy Ratio (CAR) and Foreign Exchange (FOREX) transaction were employed as the moderating variable for the relationship between banks' profitability and banks' share price.

This research used static panel data and applied random effect model. The quarterly data of bank Net Interest Margin as banks' profitability ratio, Capital Adequacy ratio (CAR), and bank's foreign exchange transaction were extracted from Bank Indonesia's website. The sample consisted of 10 largest banks in Indonesia based on their total asset sizes. They were 4 largest government banks (MANDIRI, BRI, BNI, and BTN) and 6 largest private banks (BCA, DANAMON, PERMATA, PANIN, CIMB NIAGA, and MAYBANK INDONESIA). Meanwhile, the data of government banks share prices and private banks share prices were extracted from Yahoo Finance's website. The sample period of the study was from 2005 until 2014.

The analyses were carried out in three steps, beginning with the analysis by using the regression model below:

$$Share\ price_{it} = \beta_0 + \beta_1 Profitability_{it} + e \quad (1)$$

Model (1) was the regression model that was applied to measure the influence of banking profitability on share price. Profitability was measured by NIM which was calculated by net interest income over total earning assets (Doyran, 2013). This calculation was also applied by the Central Bank of I*ndonesia to measure Net Interest Margin (Bank Indonesia, 2001). Meanwhile, the dependent variable was nominal share price (in Rupiah). In the second step, the variable MV is included into equation 1 above. Below is the model:*

$$Share\ price_{it} = \beta_0 + \beta_1 Profitability_{it} + MV_{it} + e \quad (2)$$

Where MV_{it} was the moderator variables which were measured by Capital Adequacy Ratio (CAR) and Foreign Exchange transaction (FOREX) separately. Therefore, the regression models were formed in two models (2a and 2b). Thus, this regression models were listed below:

$$Share\ price_{it} = \beta_0 + \beta_1 Profitability_{it} + CAR_{it} + e \quad (2a)$$

$$Share\ price_{it} = \beta_0 + \beta_1 Profitability_{it} + FOREX_{it} + e \quad (2b)$$

Where Capital Adequacy Ratio (CAR) was measured by Total Regulatory Capital divided by Total Risk Weighted Assets. Meanwhile, foreign exchange transaction was measured by the total bank's foreign exchange transaction (in Rupiah).

Finally, to test the contribution of these moderating variables, they were moderated as given in model (3) below:

$$Share\ price_{it} = \beta_0 + \beta_1 Profitability_{it} + {}_2 MV_{it} + \beta_3 Profitability.MV_{it} + e \quad (3)$$

The MV_{it} was the interaction between moderating variables that consisted of Capital Adequacy Ratio (CAR) and Foreign Exchange Transaction (FOREX), with profitability. Therefore, for model 3, two sub models (3a and 3b) represented the analysis:

$$Share\ price_{it} = \beta_0 + \beta_1 Profitability_{it} + {}_2 CAR_{it} + \beta_3 Profitability.CAR_{it} + e \quad (3a)$$

$$Share\ price_{it} = \beta_0 + \beta_1 Profitability_{it} + {}_2 Forex_{it} + \beta_3 Profitability.Forex_{it} + e \quad (3b)$$

Some diagnostic tests such as multicollinearity test and heteroscedasticity test were also performed on the sample data. In addition, Lagrange Multiplier test was done in order to find out the better model between Ordinary Least Square (*OLS*) and random effect model. Moreover, Hausman test was also carried out to examine the better model between the random effect and fixed effect. Finally, based on Hausman test result, this research employed the random effect model. A summary of the variables and their measurements used in this research is shown in Table 1.

Table 1
Definition and notation of the variables

Variables	Definition	References	Predicted sign
Net Interest Margin (NIM) as profitability measurement	Ratio of net interest income to total earning assets	Ho & Saunders (1981) Allen (1988) Angbazo (1997) Maudos & Solis (2009) Lopez-Espinoza et al. (2011) Rachmawati &Kristijanto (2009) Maulana et al.(2015) Sunyoto & Sam'ani (2014) Indiani & Dewi (2016)	Positive influence of Net Interest Margin on Share Price
Capital Adequacy Ratio (CAR)	Total Regulatory Capital divided by Total Risk Weighted Assets	Olalekan & Adeyinka (2013) Al-Kayed et al. (2014) Ariff & Tunyarputt (2013)	Negative influence of Capital Adequacy Ratio (CAR) on Share Price

Table 1 *(continue)*

Variables	Definition	References	Predicted sign
Foreign Exchange Transaction (FOREX)	Total bank's foreign exchange transaction	Kim (2003) Noman et al. (2012) He et al. (2014) Bahmani & Saha (2015)	Positive influence of foreign exchange transaction on share price
Share Price	Equilibrium price of demand and supply of share, and this price is in daily, monthly, or quarterly basis	Kim (2003) Rachmawati & Kristijanto (2009) Sunyoto & Sam'ani (2014) Brahmani & Saha (2015) Maulana et al. (2015) Indiani & Dewi (2016) Nino et al. (2016)	Positive influence on Net Interest Margin and Foreign Exchange transactions. Negative influence on capital adequacy ratio (CAR)

RESULTS

The section discusses results of this study. Firstly, this section presents the descriptive statistics for the variables employed. Secondly, this section presents results of the regression models. Finally, the last part of this section presents results of the robustness test.

Descriptive Statistics

Table 2 shows summary statistics of the variables used in this study. The mean of government net interest margin (NIM) was 0.0632 which was higher compared to the private banks mean of 0.0545. This finding implied that government banks had higher profitability than private banks. In other words, the government banks could reach net interest margin up to 0.12, while the private banks could only reach up to 0.09. However, both of these banks had the same minimum value of net interest margin, which was 0.03. The mean share price for the government banks was Rp4, 281.94 while this was Rp2, 259.97 for the private banks. Although the mean share price for the government banks was higher than the mean share price for the private banks, its maximum value of share price was still lower than the maximum value of the share price of the private bank (Rp11,

Table 2
Descriptive statistics

	Government banks			Private banks		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum
Net Interest Margin (NIM)	0.0632	0.03	0.12	0.0545	0.03	0.09
Share Price (in Rupiah)	4281.94	553	11,417	2259.97	1,400	13,092
Capital Adequacy Ratio (CAR)	0.1672	0.12	0.27	0.1708	0.09	0.37
Foreign Exchange Transaction (in million Rupiah)	8,044,553	18,264	46,000,000	7,063,350	3,896	78,063,350

417 for the government banks and Rp13, 092 for the private banks). Meanwhile, the minimum value of government banks share price was Rp553 and this could reach up to Rp1, 400 for the private banks' share price. Furthermore, the private banks had a better capital adequacy with the mean of 0.17 and maximum value of 0.37, compared to the government banks mean of 0.16 and the maximum value of 0.27. In addition, the government banks had more foreign exchange transaction with mean of Rp8, 044, 553 million, while private banks had a mean of Rp7, 063, 350 million. However, the private banks could reach the maximum value of transactions up to Rp78,063,350 million and government banks could attained up to only Rp46,000,000 million.

Regression Analysis

Table 3 and Table 4 show that the adjusted R-squared values were ranged from 0.0031 to 0.3719 for all the models. As shown in column 4 of Table 3, capital adequacy ratio could moderate the influence of the government banks profitability on share price. However, this was not true for the private banks, as presented by the result given in column 4 of Table 4. The significant interaction term in column 6 of Table 3 indicated that foreign exchange transactions influenced banks' share price. Meanwhile, for private banks, although foreign exchange transactions influence banks' share price, they did not moderate the relationship between bank profitability and banks' share price. Moreover, the multicollinearity and heteroscedasticity test were also performed

Table 3
Government banks (Dependent variable: Share price)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) : Y=α +βprofit	Model (2a) : Y = α + βprofit + βCAR	Model (3a) : Y = α + βprofit + βCAR + βProfit.CAR	Model (2b) : Y = α + βprofit + βForex	Model (3b) : Y = α + βprofit + βForex + βProfit. Forex
C	7.182*** (41.66)	4.055** (2.27)	16.726*** (3.70)	2.789** (3.33)	5.359*** (4.55)
Profit	14.618*** (5.69)	13.903** (2.20)	20.149*** (3.54)	20.841*** (7.48)	17.365*** (5.93)
CAR		-0.666** (-2.10)	1.73** (2.11)		
Profit.CAR			-177.95*** (-2.64)		
Forex				0.270*** (5.75)	0.100 (1.39)
Profit.Forex					5.38e-07** (3.01)
Adj R-squared	0.1874	0.1218	0.235	0.3391	0.3719

Notes: 1. (*) indicates significance at 10% level, (**) indicates significance at 5% level, and (***) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

Table 4
Private banks (Dependent variable: Share price)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1): Y = α + βprofit	Model (2a) : Y =α + βprofit + βCAR	Model (3a) : Y = α + βprofit + βCAR + βProfit.CAR	Model (2b) : Y = α + βprofit + βForex	Model (3b) : Y= α + βprofit + βForex + βProfit. Forex
C	4.502*** (17.58)	6.252*** (13.95)	6.964*** (8.68)	5.331*** (9.67)	4.115*** (6.74)
Profit	47.770*** (10.45)	-7.790** (-2.44)	-1.458 (-0.22)	-8.803*** (-2.75)	1.797 (0.48)
CAR		-0.708*** (-6.34)	-0.322 (-0.860)		
Profit.CAR			-38.509 (-1.08)		
Forex				0.147*** (6.01)	0.190*** (5.21)
Profit.Forex					-2.39e-08 (-0.36)
Adj R-squared	0.3183	0.0645	0.0675	0.0031	0.2174

Notes: 1. (*) indicates significance at 10% level, (**) indicates significance at 5% level, and (***) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

on the regression model and the results showed that these issues could be ruled out. The values of the government banks variance inflation factor (VIF) were ranged from 1.56 to 4.93 or lower than 10, while these were 1.01 to 1.59 for the private banks. In addition, values of Breusch-Pagan test were ranged from 0.1447 to 0.4671 or higher than 0.05 for all the models. Indeed, the random effect model was better choice to be employed than the fixed effect model because the probability values of Hausman test were found to be higher than 0.05 for all the models.

Robustness Test Using ROA and ROE

As a robustness check, the regressions were repeated by using two other measures of profitability that are return on assets (ROA) and return on equity (ROE).

Robustness Test Using ROA. As shown in column 2 of Table 5 and Table 6, bank profitability measured by ROA had a significant and positive relation with share price. This result was also consistent with the previous regression using net interest margin as profitability measurement. Moreover, similar to the analysis using NIM, the capital adequacy ratio was found to enhance the influence between government banks profitability and share price. The government banks foreign exchange transactions also increased the relationship between profitability and share price which was reflected by the results in column 6 of Table 5. On the other hand, capital adequacy ratio and foreign exchange transactions failed to enhance the relationship between private banks profitability and its share price.

Table 5
Robustness test (ROA) of government banks (Dependent variable: Share price)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) : Y = α + βprofit	Model (2a) : Y = α + βprofit + βCAR	Model (3a) : Y = α + βprofit + βCAR + βProfit. CAR	Model (2b) : Y = α + βprofit + βForex	Model (3b) : Y = α + βprofit + βForex + βProfit. Forex
C	6.97*** (78.77)	7.82*** (29.26)	6.99** (14.56)	4.99*** (9.36)	5.56*** (8.43)
Profit	45.8*** (14.40)	40.65*** (9.38)	82.07*** (4.40)	38.58*** (7.17)	42.21*** (12.38)
CAR		-4.64*** (-3.92)	0.266 (0.11)		
Profit.CAR			-235.3** (-2.40)		
Forex				0.147*** (4.15)	0.097** (2.30)
Profit.Forex					4.01e-07** (1.97)
Adj R-squared	0.5976	0.5818	0.6328	0.640	0.653

Notes: 1. (*) indicates significance at 10% level, (**) indicates significance at 5% level, and (***) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

Table 6
Robustness test (ROA) of private banks (Dependent variable: Share price)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) : Y=α +βprofit	Model (2a) : Y = α + βprofit + βCAR	Model (3a) : Y = α + βprofit + βCAR + βProfit. CAR	Model (2b) : Y = α + βprofit + βForex	Model (3b) : Y = α + βprofit + βForex + βProfit. Forex
C	5.76*** (45.48)	7.74*** (27.70)	7.43 (32.07)	4.41*** (9.17)	4.75*** (5.07)
Profit	71.24*** (11.94)	8.91** (2.25)	22.96** (2.13)	6.28 (1.56)	3.10 (0.34)
CAR		-4.6*** (-7.62)	-3.02** (-2.50)		
Profit.CAR			-74.56 (-1.54)		
Forex				0.168 (6.47)	0.116 (0.7)
Profit.Forex					0.046 (0.28)
Adj R-squared	0.879	0.080	0.102	0.342	0.323

Notes: 1. (*) indicates significance at 10% level, (**) indicates significance at 5% level, and (***) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

Robustness Test Using ROE. Referring to the Table 7 and Table 8, results of the robustness test using return on equity (ROE) were also similar to the net interest margin. The government banks capital adequacy ratio (CAR) could raise the influence of banking profitability on share price. Moreover, the government banks foreign exchange transaction could also increase the relationship between banking profitability and share price. Meanwhile, both the moderating variables (capital adequacy ratio and foreign exchange transactions) could not increase the influence of private banks profitability on share price.

DISCUSSIONS

The results above showed that both the government banks' and private banks' profitability had positive and significant relationships with their share prices. This indicates that profitability of banks is important for a positive performance of their share price. In other words, the higher of this ratio reflects the good performance of the bank's management. Investors react to this favorable performance and raise their confidence on the banking institutions through higher share price. It is important to note that these results are in line with Rachmawati and Kristijanto (2009), Tan and Floros (2012a), and Maulana et al. (2015).

The results also showed that capital adequacy ratio (CAR) moderated the influence of government banks profitability on share price. These results are consistent with Olalekan and Adeyinka (2013), Demirguc-Kunt et al. (2013), Al Kayed et al. (2014), and Pranata (2015). Meanwhile, as the moderator, capital adequacy ratio

Table 7
Robustness test (ROE) of government banks (Dependent variable: Share price)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) : Y = α + βprofit	Model (2a) : Y = α + βprofit + βCAR	Model (3a) : Y = α + βprofit + βCAR + βProfit.CAR	Model (2b) : Y = α + βprofit + βForex	Model (3b) : Y = α + βprofit + βForex + βProfit.Forex
C	6.74***	7.12***	5.18***	4.95***	6.08***
	(59.58)	(18.91)	(10.02)	(8.90)	(8.81)
Profit	5.97***	4.95***	12.14***	4.33***	3.56***
	(13.17)	(7.05)	(5.40)	(6.54)	(5.03)
CAR		-1.26	8.68**		
		(-0.84)	(3.08)		
Profit.CAR			-35.05**		
			(-2.71)		
Forex				0.148***	0.076*
				(3.99)	(1.71)
Profit.Forex					6.98e-08***
					(2.65)
Adj R-squared	0.498	0.544	0.589	0.5775	0.5784

Notes: 1. (*) indicates significance at 10% level, (**) indicates significance at 5% level, and (***) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

Table 8
Robustness test (ROE) of private banks (Dependent variable: Share price)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Variable	Model (1) : Y = α + βprofit	Model (2a) : Y = α + βprofit + βCAR	Model (3a) : Y = α + βprofit + βCAR + βProfit.CAR	Model (2b) : Y = α + βprofit + βForex	Model (3b) : Y = α + βprofit + βForex + βProfit.Forex
C	5.77***	7.84***	8.68***	4.47***	4.41***
	(31.76)	(20.24)	(9.82)	(9.76)	(8.78)
Profit	7.44***	-0.099	-1.08	0.588	0.737
	(7.9)	(-0.20)	(-1.04)	(1.08)	(1.01)
CAR		-4.25***	-5.03***		
		(-7.25)	(-5.35)		
Profit.CAR			0.145		
			(1.06)		
Forex				0.166***	0.185**
				(6.17)	(2.72)
Profit.Forex					-0.019
					(-0.31)
Adj R-squared	0.21	0.0011	0.0009	0.272	0.271

Notes: 1. (*) indicates significance at 10% level, (**) indicates significance at 5% level, and (***) indicates significance at 1% level. 2. Values in parentheses are t-statistics.

has an insignificant value for private banks. This value shows that capital adequacy ratio does not moderate the influence of private banks' profitability on share price. Generally, the government banks capital is supported by the government. Therefore, the government banks in Indonesia seem to not find difficulties to fulfilling the minimum capital requirement. This circumstance can reduce investors' fear about the government bank's solvability problem and make them more confidence to invest in the government banks' shares. Meanwhile, lower capital adequacy ratio also indicates that the government banks can allocate more funds in earning assets than the private banks. As a result, the government banks can generate higher profits or better performance than the private banks, and this situation will influence the government banks share price.

When foreign exchange transactions were included in the regression, it was found to enhance the influence of government banks profitability on share price. This result is consistent with Kim (2003) and He et al. (2014). However, as the moderator, foreign exchange transactions are only significant for the government banks. In other words, it cannot moderate the influence of private banks' profitability on share price. This situation occurred because the government banks had the tendency to have more foreign exchange transactions compared to the private banks. In addition, the government banks tend to have better access to cooperate with many big companies especially government companies compared to private banks. Government banks facilitate foreign exchange transactions and provide hedging activity for those companies. Thus, these

activities may affect the government bank's profitability, which will eventually influence their share price.

The robustness test was also employed using the ROA and ROE. As an alternative of profitability ratio, these ratios also generated similar results to net interest margin. Furthermore, these ratios can increase the influence of the government banks' profitability on share price. Nevertheless, these ratios cannot raise the influence of the private banks' profitability on share price. In other words, these robustness test results show that net interest margin is a good indicator to measure banking profitability for both the government banks and private banks.

The results of this study can be used as a guideline for banks in Indonesia in preparing for measures to be taken in anticipation of a declining profitability (NIM) which may influence the banks' share price negatively. Moreover, the results may also serve as a justification for banks to evaluate the importance of Capital Adequacy Ratio (CAR) and the influence of fluctuating foreign exchange s on banks' share price. In addition, this study may provide recommendations for the Government in evaluating their interest rate policy that will affect both banks' NIM and share price. Thus, Indonesia Financial Service Authority should review and consider their future plan on limiting net interest margins, as this policy would harm their share price. More importantly, Indonesia Financial Service Authority must also control capital adequacy ratio (CAR) continuously in order to maintain the liquidity position of banks. In addition, the central bank of Indonesia should implement some policies that will facilitate private banks to gain more access to corporations or institutions with large foreign exchange transactions. This is to ensure the private banks to be able to raise their profitability through these transactions.

CONCLUSIONS

Net interest margin has become the most important issue influencing the movement of bank share price in Indonesia. Recently, the bank's share market is dominated by ten biggest banks in Indonesia. The regression results show that there both the government and private banks' profitability have an influence to the share price. In addition, capital adequacy ratio can be a good moderator for the government banks because it enhances the relationship between the government banks' profitability and the share price. However, this ratio cannot moderate the influence of the private banks' profitability on the share price. Although foreign exchange transactions influence the performance of share price of both government and private banks, it fails to enhance the relationship between profitability and share price of private banks. In addition, the robustness tests using ROA and ROE are able to generate similar results to the NIM.

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Sui Sien Leong[1]* and Mohamad Aziz Dollah[2]

[1]Department of Animal Sciences and Fishery, Universiti Putra Malaysia, 97008 Bintulu, Sarawak, Malaysia
[2]Department of Biomedical Sciences, Universiti Putra Malaysia, 43400 Serdang, Malaysia

leongsuisien@upm.edu.my (Sui Sien Leong), Contact number
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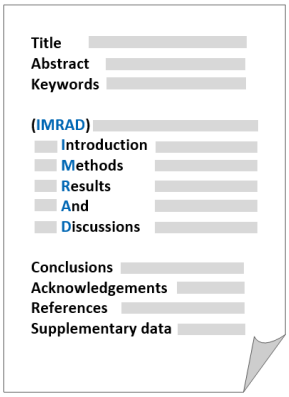

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Article in an newsletter	… ("Australians and the Western Front", 2009) ...	Australians and the Western Front. (2009, November). *Ozculture newsletter*. Retrieved June 1, 2019, from http://www.cultureandrecreation.gov.au/ newsletter/

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